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EDITORIAL.

The United States Pharmacopœia.

THE editor of the *Philadelphia Medical Times*, in the issue of December 30th, while commenting upon the new pharmacopœia, and especially upon the wisdom of the Committee of Revision in dismissing certain articles, makes statements and expresses opinions which seem worthy of criticism. For example, he says:

(1) "Carbonic acid water should not, in our opinion, have been dismissed: it will continue to be just as useful, however, whether officinal or not, which is a consolation that neither stupidity, carelessness. nor any other evil or good quality in a committee of revision can deprive us of." . . .

(2) "But we meet with no very decided cause of complaint until we come to Castoreum. This long rather than much-used remedy would certainly have escaped destruction from any other than the most reckless iconoclasts." . . .

(3) "Are there no worms in Boston? Are the children of New York of such vicious nature that even the parasites flee from their inmost parts? For the action of the Committee in regard to worm medicine betrays the most extraordinary ignorance about vermifuges. The two most valuable officinal remedies for the round worm are dismissed. Fluid extract of spigelia and senna will undoubtedly continue to be used; but the attempt to substitute santoninate of sodium for santonin is fraught with danger."

(4) "Practitioners should remember that it is ordered to prepare non-officinal infusions by a general formula, and that in most of the more powerful infusions the strength is thereby greatly increased. Either write 'U. S., 1870' after an infusion, or give the strength it is to be made in the prescription."

(5) "A very valuable remedy omitted without reason is the Oil of Camphor."

It has been generally admitted that a pharmacopœia should contain, as a rule, only agents of recognized therapeutic virtues, and especially that it should establish such standards of identity and purity as will enable pharmacist to supply a uniform article wherever it is prescribed. From this point of view, wherein lies the therapeutic value of *Carbonic-acid water* that should entitle it to the distinction of being made officinal, or when has it been claimed that a sufficiently reliable article could not be readily obtained whenever required either as a vehicle or a beverage? The editor of the *Medical Times* must have changed his opinion of its value since he published his treatise on Therapeutics in 1874, for he there makes no reference to it. It is true that Professor Stillé says of it, in the *National Dispensatory*, that "It possibly promotes the diaphoretic action of the effervescing draught, and is perhaps more diuretic than simple water." The same writer, however, does not mention it in his work on Therapeutics, nor does Trousseau. Ringer and Phillips sum up its virtues in its ability to ease pain and check vomiting in painful and irritable affections of the stomach, to stimulate the secretions of this organ and of the kidneys and the peristaltic movements of the intestines. The same might be said of simple iced-water without the carbonic acid.

As for the absence of any necessity for some definition of what particular article is meant by the term "Carbonic-acid water," there can be no question; and we have yet to learn of many apothecaries who would be at a loss to provide a pretty fair quality. If it had been continued in the Pharmacopœia, it might have become requisite to determine the percentage of gas which the water should hold in solution to render it officinal.

Under the circumstances it can hardly be believed that the implication of stupidity or carelessness on the part of the Committee is entirely merited.

Respecting *Castoreum*, the editor says, in his treatise above referred to, "It is certainly less efficient, however, than musk, and Mr. Alexander . . . is said to have taken a quarter of an ounce of it without having experienced any effect." Prof. Stillé says (*National Dispensatory*), "But for all purposes it is less efficient than musk, and scarcely superior to ether, camphor, valerian, and some form of alcohol. The dose of castor varies from ten grains to ten times that amount, etc."

It may be owing to such opinions of the utility of the

drug and to the statement of another authority (Prof. Biddle) who said, "It is not much used," that the Committee of Revision became so "recklessly iconoclastic" as to think it possible that castoreum might follow other drugs of animal origin "to the limbo of the forgotten."

The editor of the *Medical Times* says the Committee of Revision betrays the most extraordinary ignorance of vermifuges, and that "the two most valuable officinal remedies for the round-worm are dismissed," *e. g.*, fluid extract of spigelia and senna. The second one is not mentioned, but the reader would infer from the context that it is santonin. This, however, is not the case, for santonin remains officinal as well as the crude drug from which it is derived. On looking through the list of expurgations, *Cowhage* is discovered, and this, with the fluid extract above mentioned, we may infer to be the ones considered by the writer to be the "two most valuable officinal remedies for round-worm."

We must confess that we never gave a child a dose of cowhage, and that we are not likely to do so. It may be owing to the vicious nature of our patients, as the writer implies, that milder remedies serve as efficient anthelmintics, but we have never yet been obliged to risk the existence of the patient in the efforts to dislodge the parasites. With regard to the fluid extract, it will be found that the Pharmacopœia has the formula for fluid extract of spigelia and also for fluid extract of senna, and notwithstanding the precaution taken by the editor of the *Medical Times* that the Pharmacopœia should contain no reference to doses, most physicians will be able to prescribe the amount of each that their patients should take, and if the occasion demands, they could also say about how much of the oils of anise and caraway would improve the flavor of the compound.

As it is, the Committee have left us santonica, santonin, santoninate of sodium, oil of turpentine, calomel, garlic, oil of rue, asafœtida, oxide of silver, spigelia, veratrine, sulphur, gamboge, croton oil, common salt, male fern, chenopodium, tansy, pomegranate, brayera, azedarach, creasote, arsenic acid, lime-water, various salts of iron, quassia, sulphate of copper, pumpkin seed, kamala, and their various preparations, which ought to console us for their "*extraordinary ignorance*" in leaving out *cowhage*.

It is not unlikely that the committee found so considerable a demand for santoninate of sodium as compared with cowhage that it seemed proper to substitute one for the other.

As for the greatly increased strength of most of the more powerful infusions alleged by the writer, a comparison of those officinal in the Pharmacopœia of 1870 with the present general formula giving a strength of ten per cent, will discover only *one:* the *infusion of capsicum*—used as a gargle by good mothers—of *double* strength! What risks we all must have run in our youthful days from the dangerous effects of this powerful infusion, when made by any other formula than that of the Pharmacopœia of 1870!

Finally, we come to that "very valuable remedy, omitted without reason," *Oil of Camphor*, which is defined by the Pharmacopœia of 1870 as being "the volatile oil obtained from *Camphora officinarum*." It is not mentioned in any text-book on therapeutics. It is not to be found in any of the prices current published by the leading pharmaceutical journals. Inquiries of a number of well-informed physicians show that none have used it or known of its having been used. Bentley and Trimen say that the Chinese use it as a remedy for rheumatism. The U. S. Dispensatory mentions the same fact, and says that it is made on the island of Formosa, and that samples of it have been sent to Europe; but the editor of the *Medical Times* had probably not at the time of his last revision of the Dispensatory acquired his present knowledge of its "very valuable" properties, since he does not mention them there. Coming down a little later, we find in the National Dispensatory the statement that a Philadelphia firm has made provisions for collecting the volatile oil contained in the camphor subjected to sublimation, but very strangely nothing is said of its alleged valuable properties. Considering the fact that it has been in the U. S. Dispensatory more than twenty years, this general ignorance of its value as a remedy may have been the reason why it was dropped. Now is the opportunity for the editor of the *Medical Times* to supplement his little lecture on vermifuges with one entitled "What I know about Oil of Camphor."

The style of criticism indulged in by the writer of the editorial referred to remind one of the advice given by a lawyer to his student: that when he had a bad case before a jury, his best course would be to abuse the opposite side.

The Sale of Poisons by Grocers and Other Unqualified Persons.

NOTHING has occurred in this State for a long time which shows so clearly the need for legal restriction to qualified persons of the sale of poisons, as a circular lately issued by a wholesale grocer of New York, representing to retail grocers and those engaged in a "general store trade" the advantage to be derived from the sale by them of drugs and medicines.

Among the articles enumerated in this circular as fitted for a stock which might be handled without the services of an educated drug-clerk are laudanum, morphine, and paregoric. Whatever reasons there may be in favor of the practice, already quite common in sparsely-settled communities, for the general store-keeper to deal in commonly-used drugs, there can be no justification whatever for the unrestricted sale of things which may cause death. Indeed, it is questionable whether even the substances used to destroy agricultural pests, notably Paris-green, should be permitted to be sold by general store-keepers in other than original and unbroken packages.

In view of the difficulty that has already been experienced in securing a satisfactory pharmacy law in this State, the action of the firm referred to is to be greatly regretted. Should the grocery trade throughout the State find it to be in its interests to oppose such a law, the labor needed to secure its enactment may be greatly increased. It is therefore desirable that all persons interested in its passage at this session of the Legislature should renew their efforts to impress upon their representatives the immediate necessity for the adoption of the bill now before them.

Corrections.

OWING to a failure to receive the author's corrections, the following errors were made in the article by Mr. T. J. Wrampelmeier, on page 1, of our January number:

In the first formula p′ represents the percentage strength of the required mixture. The first term of the first proposition under case (1), should read p′−p, instead of p′=p.

In the *example* under case (3), 82 should read 85.

On page 360 of December number (1882), in the article by Mr. Henry on "deodorized cod-liver oil" should read —"The oleate of iron which each *dessertspoonful* (instead of tablespoonful) of this preparation contains," etc.

PROF. EYKMAN, of Tokio, requests that the following corrections be made in the paper published in October last:

Page 290, 19th line from below. Instead of "These solutions have," read, These solutions in alcohol and chloroform have.

Page 291, 18th line from below. Instead of "if an alcoholic solution," read, If a little.

Cuprea Bark.*

BY PROF. F. A. FLÜCKIGER.

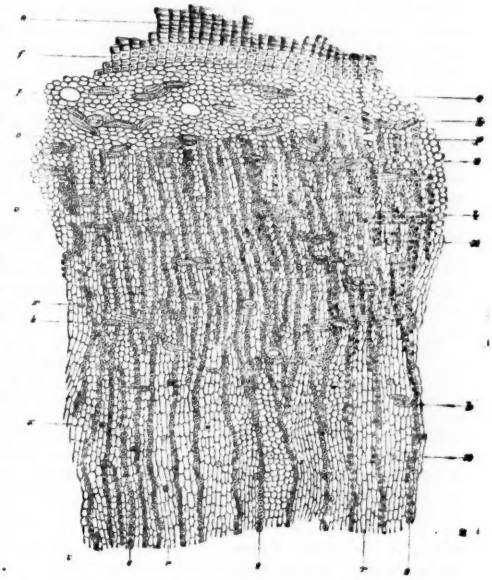
A GREAT importance has been acquired by the remarkable bark, which I designated as *Cinchona cuprea*, in 1871.† It is distinguished by a singular color which, at the surface, reminds one of slightly tarnished copper articles. It was specially stated at the time that I did not mean to liken the color of this bark to that of polished copper.

After Hesse's and my own communications on Cinchona cuprea (1871), nothing further was heard of the bark. It was only in February, 1880, that Mr. J. E. Howard notified me of its appearance in the London market in larger unmixed lots, and of its being eagerly purchased. The first importations had begun, according to Dr. Paul,‡ already in June, 1879, and in spite of its unusual appearance, its value was soon established, since it yields about two per cent of sulphate of quinine and contains only small quantities of the other alkaloids. De Vrij even obtained altogether 5.9 per cent of alkaloids from it.§ In May, 1880, there were already large stocks of this bark in London, and the further supply assumed shortly afterwards unexpected dimensions.

Cinchona cuprea occurs in rather flat, or in channelled, pieces, more rarely in quills, seldom as much as 0.5 meter (19¾ inches) in length, and not over 5 to 7 millimeters (⅛ to ⅓ inch) in thickness. By far the largest quantity is in small fragments and, generally, produces the impression that it can only be derived from a small-sized tree. The bright-brown, longitudinally-wrinkled or warty cork is usually worn off, so that the smooth surface is formed by the layer of the external bark, which has the peculiar tarnished-copper color above mentioned. Frequently the surface shows oblique knife-cuts, which sometimes run only a few millimeters apart, and probably were made to loosen the corky layer, perhaps for the purpose of exposing the more attractive color of the interior tissues. Indeed, this is so much in contrast to the formerly known cinchona barks, that it must at once strike any one who is familiar with the appearance of genuine bark; and furthermore, the cuprea bark is distinguished from all genuine cinchona barks by its great hardness. And it is impossible to confound it with the "China nova surinamensis," since the cuprea bark furnishes Grahe's red tar ‖

Samples of this cuprea bark were furnished in 1879 to a German house (Lengerke & Co.) in Buccaramanga, in the Columbian State of Santander, and were sent by them to New York and London for analysis. The favorable result of the latter then produced an extensive collection of this bark in the forests of the mountains which rise from the principal valley of the Magdalena river, over Buccaramanga, to the La Paz chain, and form the water-shed between the former river and its affluent, the Suarez.

The tree which furnishes cuprea bark begins to show itself at a height of 1,600 feet, but the best bark is gathered at an elevation of 2,200 to 3,200 (or even 4,200 feet), as I have been informed, in November of 1881 and February, 1882, by an eye-witness, Dr. Charles A. Robbins, of New York. Only a small amount of the root-bark is collected at the same time. In the districts near Buccaramanga the cuprea trees are now almost completely cut down; a somewhat similar bark, obtained from other localities, for instance from Tolima (in about 5° N. Lat., in the upper Magdalena valley) has proved to be of inferior quality. 20,000 seroons of the latter which were put on the market in 1882, yielded either very little, or at most 0.8 to 1.5 per cent of quinine. The species from which this bark is derived has not been determined; I have not seen the bark myself.



CROSS-SECTION THROUGH CINCHONA CUPREA.

e, older corky layer. *f*, recent corky layer. *k*, sclerenchyma (stone-cells). *o*, external bark. *p*, lacticiferous ducts. *r*, medullary rays. *s*, liber-fibers (bast-fibers, bast-tubes). *v*, liber (bast). *x*, crystal tubes. (Cut is half-size of original in Flückiger's work.)

During the last few years, particularly up to August, 1881, cuprea bark was brought to Europe in constantly increasing quantities. Among the 100,000 seroons of South American barks which were imported in London during 1881, there were 60,000 of cuprea; besides a further quantity of more than 5,500 seroons went to France.

Cuprea bark belongs, from its structure (see plate), to what has heretofore been designated as "false barks," but it forms a notable exception from the latter by the presence in it of alkaloids. The corky layer is formed of thick-walled cells (see figure *e*, *f*), which differ most markedly from the much wider and always thin-walled tabular cells of the cork of genuine cinchonas. This fact is the more remarkable, since a closely allied species, for instance, namely *Remijia Hilarii* appears to have thin-walled cork-cells.* The larger portion of the tissue of cuprea bark appears to be converted into sclerenchyma. Already in the external bark (*o*) are found scattered numerous groups of non-elongated, sclerotic cells (*k*); at the border of the liber are found solitary lacticiferous ducts (*p*), which are, however, absent in very many cases. The liber or fibrous layer consists mainly of thickened, simple fibres, with rounded, not pointed ends (*s*), differing, therefore, in shape entirely from the fibres of genuine cinchona barks. Only the horizontally-situated, blunt-ended, rod-shaped fibres in the latter resemble those of cuprea bark. The bast (fibrous layer) of the latter, besides, contains also shortened sclerenchyma-cells like the external bark. Only in the newest

* Translated and published by permission from the recently published work "*Die Chinarinden; in pharmakognostischer Hinsicht dargestellt von F. A. Flückiger.* Mit VIII. lithogr. Tafeln. 8vo. Berlin, 1883."

This is a special reprint, with additions, of the section on Cinchona, from the author's new *Handbuch der Pharmakognosie*, and affords a complete survey of the subject. (See our review on page 61). It is expected that an American edition of the work will shortly be published by Prof. Fred. B. Power, Ph.D., of Philadelphia, which will make it accessible to English readers.

† Vormerk's Neues Jahrbuch f. Pharmacie und verwandte Fächer, xxxvi. (Speier, 1871), 296; and thence in the Jahresber. der Pharm. (Wiggers-Husemann), 1872. 132.—Mr. J. E. Howard furnished me at that time with a fine sample of the bark which had attracted his attention in the London market already in 1857, and which he had already found to contain quinine. He has, however, not published anything on the subject.

‡ *Pharm. Journ.*, XI. (3rpt., 1880), 259.

§ Letter of Sept. 23d, 1882.

‖ Grahe's reaction is best performed, according to Hesse, by extracting some of the powdered bark with alcohol, evaporating the tincture mixed with a portion of the same powdered bark to dryness, and then heating the mass in a glass tube with some organic acid, whereupon a fine red tar is produced. Cinchona barks which contain no alkaloids, and all other barks do not yield this tar.

* Moller, *Baumrinden*, 137 (Remijia Vellozii).

bast-layers are "sieve-tubes"* and parenchyma prevalent, and here especially, but also in the external bast, are found crystal-cells (*x*), containing a microcrystalline oxalate. Hence, the fibrous layer exhibits a sharp separation into an external sclerenchymatous, and an internal parenchymatous layer, which latter has but few fibres and lignified cells ("Steinzellen"—sclerenchymatous cells). The medullary rays of the liber are narrow. The large prevalence of sclerenchyma determines the remarkable hardness of this bark, which, for this reason perhaps, has also been called "hard bark" in London. It is also distinguished by the red coloring matter which permeates the whole tissue so abundantly that it is almost impossible, for instance, to extract all the color by means of ammoniated alcohol.

The bark of one of the false cinchona barks, viz., cascarilla magnifolia, agrees in structure† almost entirely with that of cuprea bark. Yet, the cork-cells of the former are thin-walled as in the cinchonas, and its liber-fibres do not form such long, straight rows as in cuprea bark, where they may be followed uninterruptedly from the newest part of the bast to the external bark.

Hesse‡ has shown that this cuprea bark, which I first saw in his collection, contains the same alkaloids as the genuine cinchona barks. Since cuprea bark, aside from other bases, generally yields from 1 to 2 per cent of quinine, and contains no cinchonidine, the manufacture of pure quinine is thereby much facilitated, and hence the preference for the bark.

The tannin of cuprea bark, according to Hesse, is not identical with that of cinchona, although the former likewise produces a dark-green precipitate in solutions of ferric salts. Hlasiwetz ascertained, in 1867, than the tannin of coffee, when boiled with caustic lye, splits into sugar and caffeic acid ($C_9H_8O_4$, which is one of the hydrocinnamic acids: $C_6H_3.(OH)_2.CH.CH.COOH$). In 1882, Koerner treated an alcoholic extract of cuprea bark in the same manner, supersaturated the liquid with sulphuric acid and extracted it with ether, which then furnished crystals of caffeic acid; the yield was about 0.5 per cent of the weight of the bark. Extracts of other cinchona barks, when similarly treated, furnished no caffeic acid. This investigation was caused by the discovery of crystals of caffeate of quinine in the mother-waters obtained from cuprea bark in the Milan quinine works.

All cuprea bark which I have received from London and New York, as well as Jobst's factory, near Stuttgart, and large quantities which I have examined, for instance, in Zimmer's factory in Frankfurt-am-Main, always presented the same appearance. Triana states that other districts, situated to the south of Bogota,§ yield the same bark; the latter he derives, with certainty, from *Remijia pedunculata*, which would therefore seem to be also the source of the Buccaramanga bark.‖

Among the cuprea bark, however, which reached France, Arnaud¶ discovered small quantities of a bark which, according to Planchon, differs essentially from my specimens. Since Arnaud found in it a new alkaloid, *cinchonamine*, this variety may be here designated as cinchonamine bark. Planchon** states, that it is mostly denuded of the warty corky layer, and shows, on cross section, about ten rows of small, isodiametrical and polygonal cells, which, in the inner rows, gradually assume a more tangential position, and thereby impart to the section a peculiar pattern. The liber contains very numerous, densely-placed fibres with considerable internal diameter, in radial rows separated by medullary rays of a diameter of four or five cells. In a longitudinal section, the fibres appear but slightly lengthened; short sclerenchymatous cells and lacticiferous ducts are absent, while my cuprea bark is particularly distinguished by the copious presence of sclerenchyma groups. The liber of cuprea bark shows (see cut) two different layers; according to Planchon, this is not the case in the liber of the cinchonamine bark, although even here the fibres in the external bast-layers are somewhat more numerous than the internal.

Triana has procured the organs requisite for a botanical determination of the tree which yields the cinchonamine bark, in the valley of the Magdalena river (probably better, in the district between the Cauca and Magdalena?). Examination proved that it was *Remijia Purdieana* Weddell [a close relative of the Cinchonas. *Remijia pedunculata* Triana, which is the source of the ordinary cuprea bark, had been included by Karsten among the cinchonas]. By comparison of this material with the commercial cuprea barks, Planchon has definitively confirmed the above-stated derivation of my cuprea bark, as well as that of the cinchonamine bark.

On the supposed Occurrence of Salicylic Acid in certain Plants.

(Communicated by Prof. Dragendorff.)

In a recent meeting of the Dorpat Society of Natural History, Mr. Mandelin remarked that most works of reference quoted salicylic acid as one of the natural constituents of the flowers of *Spiræa Ulmaria* L., besides salicylous acid. This statement is based upon the analysis made by Loewig and Weidmann (*Journ. pr. Chem.*, xix., 1840, 236). Prof. Dragendorff had already pointed out, in a previous session of the same society, that the method of analysis described by Loewig and Weidmann very possibly might have converted the salicylous into salicylic acid. On the other hand, the description of the properties of the obtained acid do not agree with those now known to belong to it. For this reason the occurrence of salicylic acid in Spiræa remains an open question (see below).

H. Scheuch, some time ago, found salicylic acid in oil of cloves; but Mr. Mandelin, on examining cloves, or oil of cloves, failed to find it. He does not seem to doubt Scheuch's statements, but is inclined to believe that the acid is not a constant but a sporadic constituent of cloves.

According to Prof. Wayne, buchu leaves are said to contain salicylic acid. By distilling off the alcohol from almost exhausted buchu, an ethereal oil passed over in the last portions, which was partly soluble in solution of soda. This solution, supersaturated with hydrochloric acid, afforded a white, crystalline precipitate, which, when recrystallized from hot water, showed, according to Wayne, the reactions of salicylic acid, particularly the deep purple red color with ferric chloride. But the color produced by the acid, particulary if well crystallized, with the iron salt, is violet and cannot be called dark purple-red. This circumstance, as well as the fact that, at another time, Wayne obtained crystals producing with ferric chloride not a violet, but an intensely bluish-black color, make it doubtful whether the first obtained lot of crystals was salicylic acid. Neither Mandelin nor Flueckiger could discover this acid in buchu.

So far, salicylic acid has been found to exist in a free state, only in Viola tricolor (by Mandelin), and also in a few other violaceæ. Mandelin has lately also found small quantities of the acid in a false ipecac (a species of *Ionidium*, nat. fam. *Violaceæ*), obtained from Hamburg.

In a subsequent session of the some society, Mr. Man-

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* "Sieve-tubes" (*Siebröhren*), also called "bast-vesssls" (*Bastgefässe; Gitterzellen, vasa cribrosa*). They are longitudinally arranged, prismatic or cylindrical cells, more or less elongated, but always thin-walled, unlignified, and mostly very narrow. They are attached to each other either by horizontal ends or by more or less overlapping ends, which are usually somewhat turgescent. See *Vogl, Commentar zur Oesterr. Pharmakopœ* (1880), p. 15.—Ed. N. R.

† This is well represented in *Berg, Chinarinden der pharmakognostischen Sammlung in Berlin* (1865), pl. x., fig. 27. In the innermost part of the liber of cuprea bark the fibres are much more numerous than here.

‡ Berichte der Deutsch. Chem. Ges. (1871), 818.

§ In the mountains descending eastward to the Orinoco, between 1,000 and 2,000 meters over the level of the sea, in the river-ranges of the Rio Mesa, Rio Negro, Guaviare, Papamine, Zarapote, and other affluents of the upper Orinoco and Amazon.

‖ *Journ. de Pharm.*, v. (1882), 567, also *Pharm. Journ.*, xii., (1882), 861.

¶ *Repert. de Pharm.*, 1881, 507.

** *Journ. de Pharm.*, v. (1882), 354: "Quinquina à cinchonamine," and VI., 89: "Notes sur les écorces de Remijia.

delin reported the results of his experiments on spiræa flowers.

100 grams of fresh, cut flowers were macerated with 600 *cc.* of 96% alcohol for 3 or 4 hours, then digested under an upright condenser for 2–3 hours on a steam bath and, after cooling, expressed. The yellow filtrate, which became turbid on cooling, was freed from alcohol by distillation at as low a temperature and pressure as possible, and left a thick, brown residue, amounting to 35 *cc.*, of an agreeable odor and containing but little resin. This was diluted with water to 100 *cc.* which caused the separation of a yellow substance; after filtration, the yellowish brown, clear filtrate was shaken out with ether. This necessarily dissolved any salicylic acid present. It was washed a few times with water, and then the ether distilled off until 3–4 *cc.* remained. The residue left after the spontaneous evaporation of the remaining ether consisted of some yellow, microscopic crystals (probably Spiræa-yellow), a little chlorophyll, fat, and an aqueous liquid. It was treated successively with 60 and 5 *cc.* of water at 60 C., and the clear, yellowish, filtered liquid (which had an acid reaction) shaken with petroleum ether, which must take up any salicylic acid present. But no trace of the same could be found in the solution or in the residue left on evaporating the petroleum ether.

On examining the fresh *herb* of *Spiræa Ulmaria* L., however, Mandelin found salicylic acid in not inconsiderable quantity.

The Japanese Peppermint Plant.

BY E. M. HOLMES, F.L.S.,
Curator of the Museum of the Pharmaceutical Society of Great Britain.

WHEN examining some leaves of this plant, presented, together with a series of Japanese drugs, to the Museum of the Pharmaceutical Society by Messrs. Christy & Co. in 1879, I thought it desirable to compare them with those of the plant which is stated to yield the Chinese oil of peppermint. Through the courtesy of the keeper of the Kew Herbarium, I was permitted to taste a fragment of a leaf of the Chinese plant and one of Blume's specimens of *Mentha arvensis* L. var. *javanica*, the plant to which this peppermint is referred in "Pharmacographia." To my surprise I found that neither Blume's specimen, nor any others of the same plant from various localities, had the taste of peppermint, but possessed a flavor similar to that of the garden mint (*M. viridis*). Judging that the Japanese plant could not belong to *M. arvensis*, var. *javanica*, I referred to the Japanese work "Zo Mokou Zoussetz," in which the Japanese peppermint plant is stated to be *Mentha arvensis* var. *vulgaris* Benth. On tasting the type-specimen of this plant at Kew, I found that this also did not possess the taste of peppermint, but only that peculiar to European specimens of *M. arvensis*. I therefore wrote to China and Japan for specimens of the peppermint plants of those countries. After the lapse of more than a year, Mr. C. Ford, the director of the Botanical Gardens at Hong Kong, was able to procure a flowering specimen of the Chinese plant for me, but no specimens of the Japanese plant could be procured by my correspondents. Mr. T. Christy, however, after having first obtained seeds of the plant, attempted to grow them without success, but was ultimately, and after considerable difficulty, able to procure from Japan living plants which flowered this year in his garden at Sydenham, and a specimen of the plant was exhibited for the first time, I believe, in this country at a meeting of the Pharmaceutical Conference at Southampton. On careful examination, both the Chinese and Japanese plants thus obtained were found to possess the botanical character of *Mentha arvensis*, as defined in De Candolle's Prodromus, the leaves being stalked, ovate-lanceolate, and the hairs on the stems and pedicels reflexed, those of the calyx being erecto-patent, and those of the upper surface of the leaf appressed; the calyx being bell-shaped with acute lanceolate or narrowly triangular teeth. The Chinese plant differs from the Japanese one in the leaves being narrower in proportion to their length, and in the calyx teeth being shorter and more broadly triangular. In outline, the leaves of both plants taper more to the base, and have a longer petiole than the English forms of *M. arvensis*, coming very near to *M. canadensis*, in the feature. The latter plant, however, has spreading hairs on the stem. The Chinese plant appeared so nearly to resemble *M. canadensis*, var. *glabrata*, that I applied to Prof. Asa Gray for specimens of that species for comparison. The specimens of *M. canadensis* which he kindly forwarded to me were derived from different localities in the United States, and varied considerably in taste and appearance, some having the flavor of pennyroyal, others that of *M. viridis*, and others again that of peppermint in a feeble degree.

The specimen having a peppermint flavor is labelled *M. canadensis*, var. *glabrata;* it has reflexed hairs on the stem, and differs from the typical plant in having more triangular and shorter calyx teeth which, as well as the petioles, have erect hairs; in fact, it appears in every respect to be the same plant as that grown at Canton. It is not surprising, however, to find Japanese or Chinese plants extending to North America.

It appears, then, that there are two plants possessing a widely different taste, and both referred to *M. arvensis*, var. *javanica*, by botanists. This might lead to confusion if the Chinese or Japanese peppermint plants ever came into demand for purpose of cultivation, unless a special name be given to the form which possesses the peppermint flavor, even although it does not possess characters sufficiently definite to separate it from *M. arvensis*. The mints are well known to form an uninterrupted series of plants which it is difficult to separate into species. Deeming it advisable therefore, before giving it a name, to consult those botanists who have critically studied the mints, specimens of the Japanese peppermint plant were forwarded to several authorities on the genus, and the following opinions have been expressed. Mr. J. G. Baker, of the Kew Herbarium, considers it to be a form of *Mentha sativa* Sm. (It may here be remarked that this form, as recognized by Hooker and Babington in their "British Floras," is a species differing from *arvensis* in the smaller upper leaves and longer calyx teeth, while De Candolle includes it under *M. arvensis*.) Professor Baillou, of Paris, expresses the opinion that it must be referred to *M. arvensis*, var. *javanica*, unless it be a hybrid between *M. arvensis* and *M. piperita*. Dr. Garcke, of Berlin, finds the plant to be nearly allied to *Mentha canadensis* D. C., and also to *M. aquatica*, var. *subspicata* D. C. Dr. Franchet, one of the authors of the most recent Flora of Japan, believes the Japanese plant to be "a form of *arvensis*, characterized by the acuminate calycine segments, a feature which constantly occurs in specimens from Eastern Asia." He adds: "After carefully comparing your specimen, and having vainly sought an analogous taste in the different forms of the *M. arvensis* of Europe, I have found in them only an insipid and herbaceous flavor; I can say the same of *M. arvensis* from the neighborhoods of Pekin and Chefu, in the province of Shantung, and from the neighborhood of Lake Sitau, in the province of Sche-Kimy, but I find the taste of peppermint developed in a very high degree in a specimen gathered at Voosung, near Shanghai. From Japan I possess specimens of *M. arvensis* gathered in very many localities, and I have found the taste of peppermint in all my specimens without exception. This taste is absolutely the same as that furnished by your plant. I remark, however, that the taste is more pronounced in proportion as the plants are more robust; puny specimens with small leaves from Kanasawa (in Nippon) possess it only in a feeble degree." He thinks that the peppermint flavor is not the result of hybridity, since no other species has hitherto been observed in Japan either in a cultivated or wild state, except *M. crispa* (Zo Mokou Zoussetz, xi., pl. 29) (which no botanist that he is aware of has ever brought back from that country) and *M. gentilis*, which is well delineated under the name of *M. arvensis*, on the same page as *M. piperita*, after information probably furnished by the Dutch. M:

Malinvaud remarks that the name *piperita* cannot be appropriated to the Japanese plant, as it is already applied to a form of *M. arvensis* with flower spikes. He, therefore, suggests the name *Mentha arvensis* var. *piperascens*.

The weight of opinion is, therefore, on the side of considering the Japanese plant as a form of *Mentha arvensis* D. C. If *M. sativa* Lin. and *M. arvensis* as defined by Babington, as well as *M. Javanica* D. C. are to be considered as forms of one species, then the Japanese plant might, I think, also rank as a form under the name of *M. arvensis* f. *piperascens*, differing from *M. arvensis* as described by Babington, in having calyx teeth longer than broad, and in the upper leaves being gradually smaller; from *M. sativa*, in the leaves having longer stalks, and tapering below; from *M. Javanica* in the uppermost leaves being more than twice (usually six or eight times) as long as the verticillasters, and in the veins being hairy on the under surface of the leaf, whilst those on the calyx are erecto-patent; and from *M. canadensis* in the reflexed pubescence of the stems.

With respect to the Chinese peppermint plant, it so exactly agrees with the specimen of *Mentha canadensis* var. *glabrata*, furnished to me by Dr. A. Gray, that, if the latter be a typical specimen,* I can only consider that it should be referred to *M. arvensis*, under the name of *M. arvensis* var. *glabrata*. Dr. Gray's specimen has the calyx teeth much shorter than those of the typical *M. canadensis* sent at the same time, and the hairs on the stem and pedicels are reflexed, while those of the calyx tube are erecto-patent. There are some other points in connection with peppermint which are extremely suggestive, and to which I desire to call the attention of those who have greater ability and more time for investigation than myself.

A number of varieties and forms of so-called species possess the same odor and flavor as shown in the following list:

Mentha piperita, *Mentha arvensis* var. *piperascens*, *M. canadensis* var. *glabrata and M. incana* (!) cultivated near Bombay for producing peppermint oil (Dymock).

Spearmint, *Mentha viridis* L., *Mentha sylvestris* (!), *rotundifolia* (!), *sylvestris* (!), *canadensis* (!)†, *M. arvensis* var.

The questions then arise:

1st. Do the oils of these species differ among themselves, as has been shown to be the case with those of *M. piperita* and *M. arvensis* var. *piperascens*?‡

2d. If so, is this difference dependent on degree of development, on climate, soil,* or sex.

3d. Is the oil in each case a mixture in which one ingredient is present in variable quantity in the different plants?

4th. Do the oils of spearmint and peppermint bear any chemical relation to each other?

5th. Which species, containing an oil of peppermint, yields the largest quantity, and which the most valuable one for medicinal purposes?

To recapitulate: The writer would recommend that, for convenience, the name *Mentha arvensis f. piperascens* should be retained for the Japanese peppermint plant, and that of *Mentha arvensis f. glabrata* for the Chinese one.—*Pharm. Journ. and Trans.*, Nov. 11th, 1882.

* Dr. Franchet notes in his "Flore du Japon," the reflexed leaves in some specimens of *M. canadensis*.

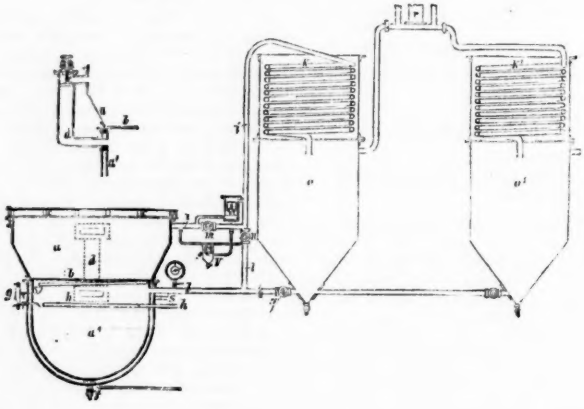
† Those marked (!) have been tasted by myself: E. M. Holmes.

‡ Pharm. Journ. (3), ii., p. 321.

* Mr. J. Lloyd found a variety of M. aquatica possessing a lemon odor on calcareous soil near the sea, and M. Malinvaud, a specimen of M. arvensis, with a lemon odor in a ditch near Ivey, where other plants of the same species possessed only the usual odor of the plant.—Bull. Soc. Bot., 1881, p. 370.

An Improved Apparatus for Extracting Soluble Substances by Volatile Solvents.

EDWARD B. HART, of Belfast, Ireland, has patented the apparatus described below.



The extraction vessel is separated, by a filtering septum *b*, into an upper chamber *a*, and a lower one *a'*. These two chambers communicate by means of a lateral tube *d* (see the small figure above the boiler), which is provided with a safety-valve, *e*. The volatile menstruum (ether, alcohol, disulphide of carbon, etc. etc.) enters the lower chamber *a'*, by means of the tube *l*, which brings it from the receptacles *o* and *o'* situated under the condensers. The substance to be extracted is packed, in a properly comminuted state, upon the septum *b*. When the vessel has been closed, steam is admitted to the jacket of the lower vessel *a*. As soon as the air has been expelled from the apparatus through the tube *i*, the stop-cocks *m* and *n*, as well as the safety-valve *e*, are closed, and cold water is made to circulate in the double-walled lid *c*. The vapor of the solvent penetrates the substance packed upon the filtering septum *b*, and, although it is condensed by coming in contact with the cold cover *c*, yet it does not flow back at once into the lower chamber, but, owing to the slight upward pressure of the vapor, it is retained in the upper chamber and kept constantly boiling while permeating the substance. When the extraction is completed, the air-vent at *e* is opened (see small figure), whereby the pressure is equalized, and the saturated liquid flows off into the lower chamber *a'*. A sample of the liquid may be drawn off through the sample-cock *g*, and the degree of exhaustion thereby esti-

mated. If the exhaustion is not complete, a new charge of the solvent may be volatilized and afterwards drawn off, which may be repeated until it no longer dissolves out anything. Then the air-vent in the tube *d* is closed again, the stop-cock *n* is opened, and a current of steam driven through the double-walled lid *c*; at the same time the pump *r* (not specially figured in the illustration) is started. The vapor of the solvent is condensed in *k* and *k'*, and the condensed liquid collects in the reservoirs *o* and *o'*. The concentrated extract is drawn off through the stop-cock *t*, as soon as all the solvent has been evaporated from the lower chamber *a'*. Now the stop-cock *m* is opened, and *n* closed. As soon as a sufficient vacuum has been produced by the air-pump, a little steam is admitted into *a'* through the tube *h*, just enough not to diminish the vacuum considerably. This steam attracts the solvent remaining in the substance upon the septum, and is concentrated, along with the menstruum, in *b*. The operation is finished whenever the trial-cock *v* yields nothing but water.

Sulpho-Carbolates.

DR. H. P. FARNHAM, of New York, in a paper read before the Materia Medica Society of New York* calls attention to the great difference in the compound salts known as the sulpho-carbolates of zinc and of soda, and says:

The history of the origin of these salts is well known. After the discovery of the anti-zymotic powers of the sulphites by Polli, in 1857, many experiments were made to improve upon them and unite with them the more powerful antiseptic carbolic acid, which was considered the most efficient agent known for local use, but not available for internal administration, as it was not tolerated by the stomach nor absorbed into the blood in sufficient quantity to serve any good purpose.

After many unsatisfactory trials, Dr. A. F. Sansom, of London, succeeded in producing the double salts of carbolic acid, and exhibited specimens of them before the Medical Society of London, reading a paper which was reported in *The Medical Times and Gazette*, February 22d, 1868. In this paper he considered the sulphites as the most easily absorbed of our internal antiseptics, and carbolic acid the most powerful, and "that the great desideratum was a salt which should combine the two, and this desideratum he had succeeded in fulfilling in the sulpho-carbolates."

I was much interested in these contributions of Dr. Sansom and gave the new salts several thorough trials—at first always finding them disagreeable to my patient, and unsatisfactory in their results. At length considering it very probable that it might be owing to some fault in the drug itself, I ordered the sulpho-carbolates from Morson's, of London, and for the past eight or ten years have prescribed no other.

Other chemists may prepare the salts as well, but these have always given me satisfaction, and I have never used any other that did not disappoint me.

In spite of the words *Morson's* ONLY, always underscored, my patients have several times been vomited and prostrated by a mixture utterly unlike that prescribed in smell, taste, and effects, and when I took the bottle on one occasion to the apothecary who had dispensed it, he excused himself by saying it was Merck's preparation, and that Merck was as good a chemist as there was in Europe.

I thought my little patient would certainly die from the prostrating effect of the nauseous dose, and sent immediately for the medicine I had ordered, which acted promptly and favorably, and would not have been recognized by anybody as the same prescription.

When in London last year I called at Morson's establishment to make inquiries as to the cause of this great difference, and was referred to the manager of their manufacturing house. I went there and was informed that their sulpho-carbolates were made precisely according to the published formula, and the only probable cause suggested for any superiority over some others was that they were always most careful to make use of the very purest carbolic acid.

Dr. Sansom gives the method of producing the sulpho-carbolates as follows:

"Sulpho-carbolic acid (*Syn.* Sulpho-phenic acid, $C_6H_6SO_4$) is produced by the admixture in equivalent proportion of sulphuric and carbolic acids. I have obtained the pure double acid in the form of very long, colorless, finely acicular crystals, which are very deliquescent.

"The sulpho-carbolates are produced by neutralization with the various bases."

He goes on to say under the head of "*Preparation.*—I have found many specimens lacking the true characteristics of a sulpho-carbolate. The danger is contamination with: 1, the sulphate of the base employed; 2, the carbolate which evolves the odor of carbolic acid; 3, free sulphuric acid; 4, free carbolic acid. The best method is to produce, first, a definite sulpho-carbolic acid by taking equivalent weights of its components, and to neutralize with the calculated weights of the oxides employed. Crystallization should take place slowly without heat.

"*Tests.*—Each sulpho-carbolate should possess a definite and decided crystalline form. They should give off scarcely any odor of carbolic acid; they should give no precipitate with barium chloride," etc.

The specimens I present differ so decidedly from each other that they can hardly be considered as belonging to the same family. Examine the *soda* salts particularly. That of Morson corresponds closely with the description quoted above from Dr. Sansom, while the other does not answer to it either in physical properties, taste, smell, chemical or remedial effects; and it seems to me that while it may be a mixture of the component parts of the double salt, it is not chemically a true sulpho-carbolate of soda.

To the eye Morson's salt is in the form of beautiful clear crystals; the other is an amorphous powder. The former makes a perfectly clear, the latter a muddy solution, in water. The former is a remedy that any one can take without repugnance, the latter causes disgust and sometimes terrible vomiting and prostration. In a word, one is a powerful antiseptic, that can be introduced into the economy without any disagreeable effects, while the other may have similar antiseptic properties, but with such drawbacks as render it entirely unavailable as a substitute for Morson's preparation.

* A note on the sulpho-carbolates, and especially on the want of uniformity in preparations bearing the same name.—*The Medical Record*, January 6th, 1883.

Chlorinated Oil in Scabies.

A NEW remedy for this affection is made by passing chlorine into olive oil. A compress of cotton saturated with this oil is to be applied night and morning. It is said to be equally efficacious in other parasitic skin affections.

Influence of Dose on the Action of Remedies.

IN a communication to the *Medical Record* of December 2d, Dr. H. B. Hemenway, of Kalamazoo, Mich., on the above topic, the writer makes the very pertinent remark that "it is greatly to be regretted that our writers of works on the practice of medicine are not at all explicit in stating *exactly* the size of dose, how administered, and how often, as well as the name of the remedy to be used." He further adds—"for constitutional effects, in acute diseases especially, small doses, given once in one or two hours, have more uniform and favorable results than when the same quantity per twenty-four hours is given in three or four doses. Furthermore, very often when small doses are given frequently, it takes less of the drug to produce the desired results than when it is administered according to the old plan *ter in die*. The quantity taken can be better regulated, and after-results are not so likely to annoy the physician as formerly."

Tannate of Cannabine.

BY DR. FRONMÜLLER, OF FÜRTH.

"It affords me particular satisfaction," says the author, "to have experienced at last, in my old age, the joy of having found a new remedy, which amply compensates me for all the labor bestowed by me, during thirty-two years, upon the pharmacodynamic investigation of drugs at the bedside.

This remedy is the preparation above named which has been sent me by Mr. Merck, of Darmstadt, for investigation."*

Tannate of cannabine appears in form of a yellowish-brown powder, insoluble in water and ether, scarcely soluble in alcohol, having a peculiar, not disagreeable odor, and a bitterish tannin-like taste. When magnified three hundred diameters, it is seen to consist of sharp-edged, brownish and amorphous plates.

The preparation of the salt, according to Merck, is quite circumstantial, owing to its being easily decomposed. In form of tannate, however, it remains pure and unaltered. The addition of a small quantity of alkali renders the preparation soluble in water.

By distilling Indian hemp with water, an ethereal oil is obtained which consists of cannabene and cannabene hydride. A sample of the latter body was sent to the author by Mr. Merck. It was a quite thin, golden-yellow liquid of a very repulsive odor and taste, and highly poisonous.‡ A small quantity of it, injected hypodermically, produced such a strong reaction, locally and generally, in two young persons upon whom it was tried that it exceeded anything previously seen by the author. Upon the forearms of the two persons there were formed, after a short time, gigantic abscesses, and a violent fever set it. Prompt lancing and dressing, by Lister's method, impeded further progress of the trouble. Fortunately, the danger passed over in a short time. These trials had this advantage, at all events, that they proved the presence of a poisonous substance among the constituents of Indian hemp. And it is this substance which is removed in the preparation of tannate of cannabine. This is the reason why the hypnotic effect of this compound is milder, but quite as decisive as that of the extract of Indian hemp itself.

One circumstance deserves special mention, namely this, that the activity or hypnotic effect of the extract has considerably increased in the course of a number of years past. Thirty years ago, the author found the average initial dose to be 8 grains; ten years later it had to be decreased to 4 grains; and during recent times, only 2 grains could be given at first. The author surmises that this gradual increase in strength may be due to a more careful selection of the herb, or a more careful preparation, or, perhaps, the fact that it is prepared in India.‡

Tannate of cannabine has been used by the author, so far, 57 times in the hospital, and 6 times by his son in private practice; 21 of the cases were males, 42 were females; age 17 to 73 years, the majority between 20 and 40. Most of them were female servants, journeymen, and mechanics, 40 of whom had phthisis, 4 abdominal tumors, 3 chronic bronchitis, 2 lead-colic, 1 acute pneumonia, 1 insanity, 2 alcoholismus, 1 perimetritis, 2 severe asthma, 4 mercurial poisoning, 1 abdominal neuralgia. All of them had previously suffered from total or partial sleeplessness, and the majority had received opiates, among them hypodermic injections of morphine. The new soporific was usually administered in the evening at 9.30 P.M. The dose was

8 times,	0.1 *gm.*	(1½ grs.)		1 time,	0.45 *gm.*	(7 grs.)
4 "	0.15 "	(2½ ")		3 times,	0.5 "	(8 ")
10 "	0.2 "	(3 ")		1 time,	0.6 "	(9 ")
7 "	0.25 "	(3¾ ")		1 "	0.75 "	(12 ")
29 "	0.3 "	(4½ ")		1 "	1.0 "	(15 ")
5 "	0.35 "	(5½ ")		1 "	1.5 "	(23 ")
2 "	0.4 "	(6 ")				

according to the degree of wakefulness. Good resulss were obtained in thirty-seven cases, in which the patients fell asleep within half an hour or one hour, and slept calmly during the whole night, with at most but trifling interruptions. Partial success resulted in fifteen cases. In twelve cases no results were obtained. The sleep secured by the drug was usually very quiet, and not followed by toxic symptoms in the morning. In two cases only (after doses of 0.2 and 0.35 *gm.*) was there observed oppression of the head in the morning, and in three cases (doses: 0.3, 0.45 and 0.5 *gm.*) this was combined with dizziness. In a single case of lead-colic, in which the author had administered, on the previous evening, 0.75 *gm.* without effect, a dose of 1.5 *gm.* produced a strong stupor, followed by continuous sleep for three hours, and a cessation of pain on waking; next morning there were symptoms of narcosis, which, however, soon yielded to the external use of acetic ether. Vomiting was never noticed, nor were the bowels constipated, which is so commonly the case after the administration of morphine. No special observations were made on pulse, or change of temperature.

From these sixty-three cases the author concludes that the tannate of cannabine is a "prominent hypnotic," which combines vigor and gentleness, is harmless in use, does not interfere with the secretions, and, if properly administered, produces no toxic symptoms. It is likely to be a frequent competitor of morphine.—*Memorabilien. Aerztliches Intelligenzblatt.*

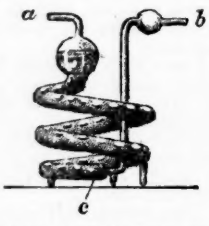
* There are some points connected with the chemistry of the substance experimented with—"tannate of cannabine"—which are not clear to us. Possibly, there will be some new facts published shortly, which may elucidate the subject. As to the therapeutic effect, the obtained results, while fairly satisfactory, scarcely justify the extreme eulogy of the author.—ED. N. R.

† There is apparently a confusion here, since hydride of cannabene is a solid.—ED. N. R.

‡ In our experience, there is better extract of Indian hemp made in England and in this country than in India.—ED. N. R.

A New Absorption-Apparatus.

When sulphuric acid is used as a drying medium for gases, it is generally used in this way that fragments of pumice stone are saturated with the acid and packed in U-tubes, through which the gas is then made to pass. Yet, the filling, cleaning, and handling of these tubes is not free from objections. Winkler has now devised a new form of apparatus, which is thought to save time and to permit even a still closer contact of the gas-bubbles with the acid than was possible in the U-tubes.



The new spiral absorption-apparatus is formed of a spirally twisted tube of thin glass, which is expanded to a globe below the exit at *a*, and which is made to stand firmly on a level surface by means of three attached glass-legs. The current of gas is conducted into the apparatus through *b* and *c*, the latter being the finely drawn-out point of the conducting tube, fused into the opening of the spiral tube. The gas being compelled to pass through this narrow opening, is thereby divided into fine bubbles, which, resembling a continuous string of pearls, ascend along the sloping top of the spiral. The latter being filled with sulphuric acid, each bubble is thereby thoroughly brought in contact with the acid, particularly as each portion of the latter, after being displaced upwards by the ascending bubbles, falls back again and meets the succeeding bubble, and constantly keeps the inner surface of the glass tube moist.

For the purposes of ultimate analysis, the apparatus may be made of glass tubing of 6 *mm.* in diameter, and in a spiral of 60 *mm.* outside diameter. The capacity then is a little over 10 *cc.*, capable of taking up about 20 gm. of concentrated sulphuric acid or 15 gm. of solution of potassa. Two of these spirals are connected with the combustion-tube, the first filled with the acid, the second

with the potash. If substances containing *sulphur* are analyzed by combustion, the sulphuric acid may be mixed with a known quantity of chromic acid. The latter retains (by oxidation) the sulphurous acid passing over; and the quantity of the latter may be ascertained by finding the amount of undecomposed chromic acid by volumetric methods.

For other purposes, the apparatus may be constructed of larger tubing, for instance, 20 *mm.* in diameter, and in larger spiral, say 200 *mm.* in outside diameter, in which case it will hold about 300 *cc.* of liquid. While it may be increased in size, according to the purpose for which it is to be used, it cannot well be constructed of smaller tubing than 6 *mm.* in diameter, since the bubbles of gas would not be able to remain isolated in smaller tubes, and would push the whole column of liquid before them.—*Zeitschr. f. Anal. Chem.*, 1882, 546.

On Kairine and Kairoline.

BY DR. WILHELM FISCHER.

THE chemical works of Meister, Lucius & Bruening, of Hoechst on the Main, will shortly put upon the market a new alkaloid—first prepared synthetically by Dr. Otto Fischer, Privat-Docent of Chemistry at the University of Munich—which is capable of reducing febrile temperatures to the normal point without producing disagreeable secondary symptoms.

It is known that quinine is a derivative of [or, at least, closely related to, ED. N R.] quinoline (chinoline). This knowledge has led to the unsuccessful attempt to employ quinoline as a substitute for quinine. Lately, however, chemists have been led, by the large proportion of hydrogen in the quinine, to suspect the latter to contain a nucleus of a hydrated quinoline rather than of quinoline itself. Accordingly, by starting from hydrated quinoline, Drs. Otto Fischer and Wilhelm Königs, of Munich, succeeded in obtaining, synthetically, a series of new substances having effects more nearly similar to that of quinine. Dr. Fischer devoted his efforts chiefly to such hydrated derivatives of quinoline in which an additional atom of oxygen was introduced in form of hydroxyl or other groups. He was led to this by the consideration of the proportion of oxygen in quinine. Dr. Königs chiefly prepared such derivatives as were free from oxygen. In this way, either by hydration or by oxydation, and by introduction of methyl-, or methoxyl-groups in various places of the hydrated quinoline molecule, a comparatively large number of substances have been prepared, and the investigations are still continued. The substances thus far prepared have been placed at my disposal for experimentation, and future products will also be placed in my hands.

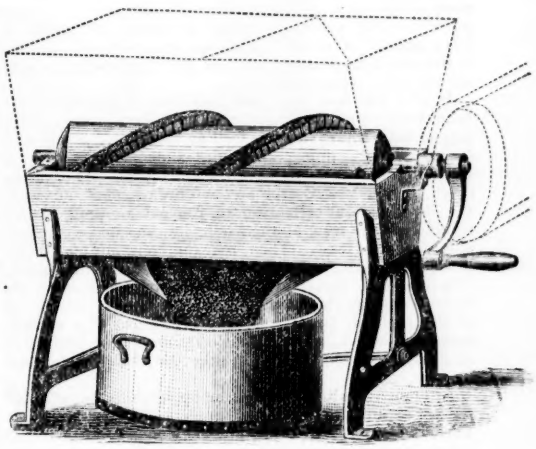
The therapeutic study has shown that there are certain derivatives of hydrated quinoline which are capable of reducing febrile temperature to the normal point and are free from local effects. These derivatives are those in which the nitrogen atom (aside from its combination with two carbon atoms in the chinoline ring) is combined with the carbon of a methyl-group or of another alcohol-radical. This fact was first noticed in the case of the "oxy-quinoline-methyl-hydride," discovered by Fischer, which we have denominated *kairine*, for brevity's sake.

After it had been shown, by the method of exclusion, that the condition of proper therapeutic effect was based upon the combination of a methyl-group with the nitrogen atom of the hydrated quinoline, another allied substance discovered by König and Leo Hoffmann, viz., the "quinoline-methyl-hydride" (now called *kairoline*, for short), was tried, and also found effective. This is constructed like *kairine*, except that one hydrogen is replaced by hydroxyl. The same effect was obtained with the "quinoline-ethyl-hydride" discovered by Wischnegradsky. The preparation of the two last-mentioned substances, in a pure state, is said to offer great difficulties, as yet; hence it is impossible at present to produce them on a large scale. They are, moreover, very hygroscopic, and have a much more disagreeable taste than *kairine*, which alone will be offered for general experiment for the present.

Hydrochlorate of kairine appears in form of a crystalline, bright, grayish-yellow powder. It has not yet been obtained of a perfectly white color. It is easily soluble in water, and has a mixed, bitter-saline and aromatic taste, resembling that of guaiacol, but not pungent.

Administered to healthy, robust adults in doses of 1 to 1.5 *gm.* (15 to 24 grains), it exerts no physiological effect whatever, and is entirely indifferent towards the temperature of the body. It causes no untoward symptoms, such as headache, humming of the ears, vomiting, etc. If administered to adult patients, particularly to feeble ones, the dose of 1 *gm.* (15 grs.) every two hours should not be exceeded, since an excess may cause the patient to assume a cyanotic look. I prefer to give it to adults (feverpatients) in doses of 0.3 to 0.5 *gm.* (5 to 8 grains) every hour or every hour and a half; with children, I have made no experiments.

It is necessary, when giving doses of 1 *gm.* (15 grains) to allow not more than two and one-half (2½) hours between the doses. When giving 0.5 *gm.* (ab. 8 grains) no more than one and one-half (1½) hours should be allowed to elapse.—*Berlin. Klin. Wochensch.* and *Pharm. Zeit.*



Zemsch's Mixing and Sifting Machine.

THE machine, illustrated in the engraving, is an ingenious German invention, too simple to require much explanation. The sifting tissue is a half cylinder of wire gauze, easily removable and exchangeable for others with larger or smaller perforations. The brush-cylinder is adjustable to various distances from the gauze, so that the bristles will remain useful even when worn to stumps. The diagonal arrangement of the brushes, with the rotary action of the cylinder, seem admirably calculated to mix various powders and to break down the lumps. The machine, with many others of the same maker, was shown at work in the exhibition connected with the Pharmaceutical Association at Berlin last year, where it attracted considerable attention and secured general approval. The dotted lines indicate its appearance when made of larger size to be worked by steam power.

The cost of the machine varies from 12 to 300 marks.

Japanese Tax on Manufactured Drugs.—A ten-per-cent tax upon all manufactured drugs, to take the place of druggists' licenses, has been imposed in Japan, and is meeting with much disfavor on the part of the drug trade.

Condensed Whey. A New Industry and a New Food Product.*

BY PROF. ALEXANDER MUELLER.

WHEY, which is a by-product in the manufacture of cheese, contains about an equal quantity of milk sugar and albumen, as well as a considerable quantity of salts and particles of caseine and butter-fat that have escaped being made into cheese. Only a very small percentage of all the whey produced in Germany is utilized directly for human nutriment, either as drink or as an addition to food and pastry, nor is much used for making milk-sugar. The greatest part of it is fed to animals—hogs, calves, cows, and even horses—at least among country cheese-makers. Where large cheese factories are situated in cities, a considerable quantity runs off in the gutters and sewers.

The value of whey for feeding cattle and hogs is scarcely higher as an average than one-half cent per gallon; its value as human food, on the other hand, is at least six times as high. This disproportion between supply and demand has frequently attracted the attention of milk producers and economists generally, without as yet, however, having met with any satisfactory solution.

The chief difficulty lies in the great dilution of nutriment in the whey, and the consequent tendency to sour or putrefy. The first step toward a better utilization of whey must be taken in the direction of concentration. As in the case of most other kinds of food, concentration will improve its keeping qualities.

It is a fact that the small dairymen of Norway have been wont from time immemorial to boil down the greater part of their whey, sweet as well as sour, more or less to a "mesost" or "prim," sometimes alone, sometimes with the addition of buttermilk, or even of cream. The boiling down in open vessels over an open fire of course demands the most painful attention to prevent burning, which would spoil the taste of the whole lot, and make it uneatable, for us at least. Then, too, the consumption of coal is so great as to make the product unreasonably costly. The use of a water or steam bath would overcome the former of these objections, but not the latter. A solution of the problem must be sought in the use of a vacuum apparatus, which, assuming the operations to be conducted on a large scale, guarantees at once the cheapest and best preparation.

After many fruitless attemps, an opportunity was afforded me last autumn, at the Cismar Condensed-Milk Factory, in Eastern Holstein, to evaporate whey in a vacuum. But before the experiment had been made there, the firm of Heckmann, in Berlin, kindly placed at my disposal a suitable vacuum apparatus, with an arrangement to prevent foaming over, and all its attachments and service. I first made use of it last January. Part of the whey was evaporated until it just began to crystallize when cold; another part to a stiff dough, which, in a few days, hardened to a solid cake.

In both cases, but especially in the latter case, a very permanent product was obtained, which could be kept for months in pure, dry air without spoiling or moulding. Whey condensed *in vacuo* is better for making milk-sugar than any other preparation. For daily use in the household, it is capable of the greatest variety of uses for food and drink, the most important of which, it seems to me, is in making different kinds of pastry, for which purposes its milk-sugar and milk salts especially fit it, and this is the easiest way to utilize them in nourishing and sustaining large classes of people. C. Becker made experiments on baking with whey concentrated on a water-bath, while Bolle used a portion of the whey extracts obtained by me in Heckmann's factory here. These bakery experiments were so satisfactory that Bolle decided to have a vacuum apparatus set up in his own place, and to offer his whey to the Berlin public in the form of bread or cake.

In the course of the following winter and spring, Bolle put up the necessary apparatus, and having secured regularity in working the process, he began the regular manufacture of whey-rye bread, and of two kinds of wheat bread, one a fine article in rolls, made of the best wheat flour, with the addition of milk, butter, eggs, etc., the other plain bread in round loaves for daily use, without the addition of the more expensive ingredients. The public seems to have a taste for this new form of bread, and the example is worthy of imitation in other places.

By careful treatment of the whey, and if the bakery were properly conducted, I have not the slightest doubt that all large cheese factories which are situated in towns could make a profitable use of their now worthless whey by evaporating and baking it, and at the same time contribute to the sustenance of the people.

Besides this, cooks and housekeepers would soon learn to use extract of whey in the preparation of their daily food, both to improve the flavor and render it more digestible.

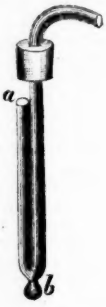
The fear that there will soon be too much whey extract made and offered to the public, is met by the idea that the larger cheese factories will in time cease to make use of thin or skimmed milk, but to sell it as condensed skimmed milk, as this would be more profitable than condensing the whey.—*Chemiker Zeitung* and *St. Louis Druggist.*

* Read before the fifty-fifth meeting of German naturalists, etc., in Eisenach, 1882.

Apparatus for subduing the Foaming of certain Liquids during Distillation.

DR. J. LŒWE has devised a simple contrivance, by means of the annoying foaming which takes place during the distillation of many liquids, particularly those containing recently formed alcohol, may be subdued.

Instead of conducting the vapor of the distillation through the ascending portion of the glass tube passing through the cork in the neck of the flask, the glass tube is made to pass into the flask in the shape shown in the cut. A small bulb being blown in the centre of the bend, the two branches of the tube are adjusted close to each other, and the ascending portion cut off a short distance below the cork. The distance from the cork to the bottom of the bulb should be such that the bulb is only a few millimetres from the bottom of the flask when the cork is tightly inserted. During the boiling of the liquid any ascending foam or bubbles break when coming in contact with the cork, and the accompanying moisture flows down along the glass tube without entering the orifice at *a* to an appreciable extent. The calibre of the glass tube should not be too small, to avoid tension of the vapors in the flask.—*Dingl. Pol. Journ.*, 245, 219.



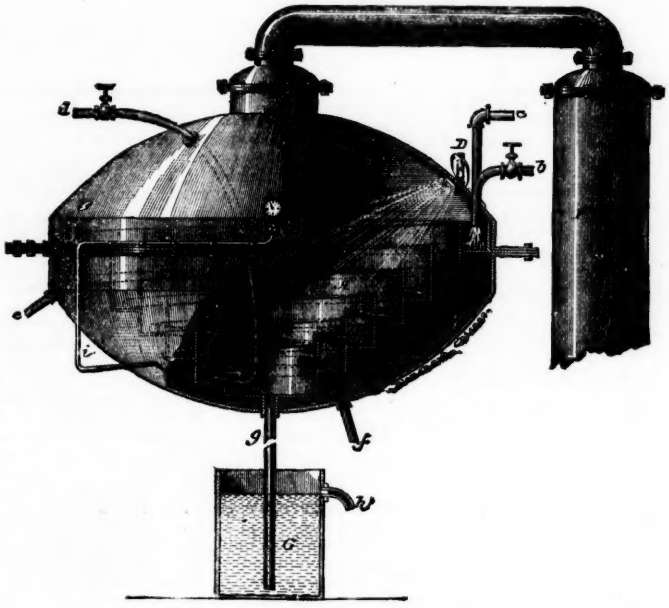
White Agaric in the Sweating of Phthisis.

DR. MURELL gives, in the *Practitioner* of November, an account of the action of white agaric (*Polyporus officinalis*) in the sweating of phthisis. After numerous experiments, he has arrived at the conclusion that is a good remedy, and that there are times when it may be used with advantage; but he much doubts if it is equal to atropia, picrotoxin, pilocarpine, or Dower's powder. In small doses, it is uncertain in its action, whilst in larger doses it purges violently. The agaric was given in doses of three grains up to thirty. The drug in three-grain doses acted slowly, and not with certainty, three grains of extract, equal to nine grains of the powder, acting better, whilst thirty grains purged violently. A tincture of 1 in 6 and a fluid extract 1 in 3 have also been prepared. The active principle, agaricine, has been given in the dose of $\frac{1}{12}$ of a grain, and was found to check cough and to promote sleep, as well as to restrain sweating.—*Pharmaceutical Journal.*

Wahl's Improved Vacuum-Pan.

MR. C. WAHL, of Chicago, has invented an improvement in vacuum-pans, which is intended to shorten the time during which the liquid to be concentrated remains in the pan. Its essential features are illustrated in the adjoining engraving. The pan is provided with the usual attachments: eyeglasses, D; a condenser, F; vacuum-gauge, thermometer, etc., but the liquid to be evaporated, instead of being filled into the pan in one bulk, passes gradually through the spiral-shaped canal or gutter, A. The space formed between this continuous channel and the bottom of the pan is used as a steam jacket, the heating capacity of which is increased by a coil of steam-pipe, B, running along on the bottom of the channel. *d* and *e* represent the inlets, and *e* and *f* the outlets for the steam. The liquid to be concentrated runs in at *b*, and after being concentrated, issues at *g*, and runs into a vessel, G, located about thirty feet below the vacuum-pan. Where the localities do not admit of this latter arrangement, the concentrated liquid must be pumped out, in which case, vessels to be used alternately will be found convenient for the reception of the concentrated mass. It will be seen that the operation of this pan is continuous, and that its working can be regulated with the precision of clockwork by the admission of liquid through the faucet *b*. While in the old style pans large batches containing up to fifty barrels are treated at the same time, being exposed to the high temperature for hours and more, in Wahl's pan every drop, so to speak, is treated by itself, and leaves the pan after having attained the desired concentration, which is accomplished in a few minutes, owing to the effective application of heat, which has to penetrate a low column of liquid of one-half to two inches height at the utmost.

The high column of liquid in the old style pans also causes violent ebullition and overboiling, which cannot happen with this improved apparatus.



Wahl's Improved Vacuum Pan.

The Action of the Salts of Sodium, Ammonium, and Potassium.

DRS. SIDNEY RINGER and HARRINGTON SAINSBURY, having made experiments with these salts on the hearts of frogs, say that potassium stands first as the most poisonous, ammonium coming next, and sodium coming last, and ranking as but very slightly poisonous compared with the others. These experiments would appear to show that potassium salts are some fourteen or fifteen times as poisonous as sodium salts. The action of these salts on other tissues has been found to coincide with the foregoing.

[The bearing of these experiments on the use of the bromides is of great importance, and, taken in connection with the relative percentage of bromine in these salts, and their comparative taste, would suggest that the one having a sodium base should always have the preference.—ED. N. R.]

Spurious Bichloride of Methylene.

M. C. TRAUB had occasion to examine the contents of an original bottle of bichloride of methylene, manufactured by Robbinson and Co., of 372 Oxford street, London, and obtained the following results:

Its specific gravity was 1.326 at 15° C., which corresponds to that of the pure bichloride mixed with a small percentage of alcohol, to increase its keeping qualities. On shaking 50 *cc.* of the bichloride with 50 *cc.* of water, the latter increased by 7 *cc.* which is abnormal. The aqueous layer was indifferent to litmus and nitrate of silver. After having been washed with water several times, and dried over chloride of calcium, it was distilled from a water-bath, and almost the entire liquid distilled over, at a temperature of 60.5° C. without varying. The specific gravity of the distillate was 1.489 at 15° C., corresponding to that of *chloroform* containing a trace of alcohol.

Traub therefore concludes that the supposed bichloride of methylene was merely chloroform reduced by alcohol to the specific gravity of the pure bichloride.—*Pharm. Centralh.*

Preparation of Syrupus Ferri Phosphatis by a New Method.

BY DANIEL GORRIE.

Of all the pharmacopœial syrups none are so unsatisfactory as those of iron, and the literature which has been written upon them is able and voluminous; it is with considerable diffidence, therefore, that I submit this paper. In syrupus ferri phosphatis there are two sources of dissatisfaction, (1st) in its preparation and (2d) in its tendency to spoil by keeping. The official method of preparation favors oxidation, while the ferrous phosphate cannot be entirely washed free from impurities which tend to favor subsequent coloration of the syrup. The method which I now bring before you is intended to overcome these objections, and has as its main feature *the constant retention of the iron in solution*, thus saving the trouble of precipitating, washing, draining, drying and redissolving a ferrous compound which is very prone to oxidation. My formula is based upon the quantities given in the official formula, and is as follows:

Take of—

Granulated sulphate of iron.....224 grs.
Syrupy phosphoric acid* (sp. gr. 1.500) 9 drachms, 56 grs. by weight.
Pure carbonate of baryta.....159 grs.
Distilled water.....6 oz. or q.s.
Refined Sugar.....8 oz.

Mix the phosphoric acid with three ounces of water, and in the mixture dissolve the sulphate of iron with the aid of heat; add the baryta carbonate, and, when effervescence has ceased, continue the heat for a few minutes, to allow the precipitate to aggregate, then allow to cool. Filter when cold and wash the precipitate with three ounces of cold distilled water; in the filtrate dissolve the sugar without heat and make up to 12 oz. if necessary.

I may be allowed to give the rationale of the process:—In the first instance, the baryta carbonate will react with phosphoric acid to form baryta phosphate, carbonic acid and water, thus:

$$2H_3PO_4 + 3BaCO_3 = Ba_3P_2O_8 + 3CO_2 + 3H_2O.$$

Double decomposition will then take place between the iron sulphate and baryta phosphate, thus:

$$Ba_3P_2O_8 + 3(FeSO_4.7H_2O) = 3BaSO_4 + Fe_3P_2O_8 + 21H_2O.$$

Although baryta phosphate is insoluble in water, it is easily held in solution by the excess of acid present. The sulphate, you are aware, is almost insoluble, 1 part only being soluble in 400,000 of water, and it is concluded that it is not more soluble in cold phosphoric acid, but the solubility is rather more at the boiling point. It will be obvious, therefore, that boiling should be prevented, and that the solution be quite cold before filtration; the total separation of the baryta sulphate is thereby secured. To prove this, I have several times made an estimation of the precipitate by heating till it ceased to lose weight and weighing; in all cases, the theoretical quantity 188.05 grs. was found. The working loss scarcely interfered with the estimation. In every case, I ascertain by the ordinary tests whether the solution contains either undecomposed ferrous sulphate or baryta phosphate previous to the addition of the sugar. The finished product is beautifully transparent and colorless, and infinitely less liable to oxidation than syrup prepared by the official method.

Since writing the foregoing, Mr. MacEwan has drawn my attention to a discussion on this subject at the Pharmaceutical Conference, held in Glasgow. In this discussion, Mr. Boreland suggested a method, based on the same principle which has guided me in drawing up a formula, namely, the precipitation of the sulphuric instead of the ferrous radicle. Mr. Borland gets this result by dissolving lime phosphate in phosphoric acid, and adding a solution of sulphate of iron, double decomposition ensuing. This method is objectionable in so far that lime phosphate to be soluble requires to be freshly precipitated (thus entailing considerable time), and besides, the finished product is contaminated with lime sulphate. The objections against the lime phosphate can be obviated by adopting my method, and substituting precipitated chalk for baryta carbonate, 81 grains of the former being equal to 159 grains of the latter. If the precipitated chalk be used, it is necessary to allow the solution to stand for twenty-four hours to allow sulphate of lime to separate as far as possible. Again, when the sugar has been dissolved in the solution, more lime sulphate separates, due no doubt to its inferior solubility in a saturated saccharine solution, hence the necessity of a few days' rest for deposition.

I am conscious that objections may be urged against the baryta method lest baryta phosphate should be held in solution by the free acid present, but it is evident that, with pure materials and careful and intelligent manipulation, the process will commend itself as being simpler, speedier, and less objectionable than the official method, or than the very slow method of dissolving iron filings in syrupy phosphoric acid.—*Pharm. Journ.*, Dec. 23d.

* Acid of this density contains, omitting a fraction, 50 per cent of phosphoric anhydrid, and the calculation is based upon this percentage. The additional quantity of acid, 76 grs., required to mitue with the Fe, to form $Fe_3P_2O_8$, is also included.

Naphthalin as an Antiseptic.

Pure naphthalin occurs in pearly white crystalline plates, and has a specific gravity of 1.1, is somewhat volatile, and melts at 79.2° C., and is sublimed at 150° C. It is quite insoluble in water or wound secretions, and even when given internally is only absorbed in very small quantity. It appears in the urine, when so administered, as naphthalin, and can be separated from that and other secretions by distillation, as it is carried over by the watery vapor and settles down in its crystalline form as the vapor is condensed. It is insoluble in alkalies or weak acids, but dissolves freely in ether, absolute alcohol, or fixed or volatile oils. As met with in commerce, it often has a rosy tint, which is due to the presence of carbolic acid. This impurity may be detected by the following tests: Boil 10.15 grams with a little water, to which a drop of caustic soda solution has been added; cool and filter. If carbolic acid is present, the addition of bromine water to the filtrate, slightly aciduated, produces either opalescence or a milky precipitate, according to the quantity present.

Naphthalin is available for all the purposes to which iodoform has been applied, and as yet no constitutional effects have been observed to follow its use locally. It is as powerful an antiseptic and "antibacteric" as iodoform, and has a less disagreeable [?] smell. Its application causes a slight transitory sensation of heat, but no pain. Anschütz states that very sensitive granulations sometimes bleed rather freely after it has been applied, owing to the sharp angles of the hard crystals. This can be obviated by using it in fine powder, though if there is much discharge it is then apt to form a crust on the surface of the granulations. When the crystalline form is used, the discharges escape freely.

Fischer first employed naphthalin dressings at Strasburg. From experiments and observations, he came to the conclusion that it is an admirable substitute for iodoform. It is quite harmless when used on man or the higher mammalia, and possesses a high antiseptic value. In an atmosphere of naphthalin, all animal or vegetable micro-organisms are destroyed, whilst neither wounded surfaces nor the healthy structures around them are in the least irritated. Recently naphthalin has been used at Strasburg for other purposes besides the dressing of wounds, such as the disinfection of sick-rooms and closets, as a parasiticide in certain skin diseases, and as an inhalation in infectious diseases involving the respiratory organs, such as diphtheria. Dr. Djankenow particularly recommends naphthalin dressings for surgeons who, like himself, have to treat patients in hospitals deficient in funds and with an insufficient supply of nurses.

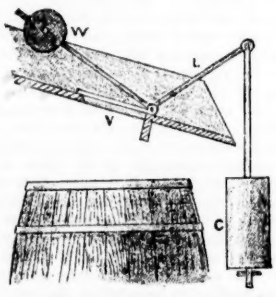
Its cheapness recommends it for use as a general disinfectant, and it has the additional advantages of being not very volatile at ordinary temperatures, and not hygro-

scopic. It has proved of considerable value in parasitic skin affections, especially in itch, and Fischer suggests its use to rid domestic animals and plants from parasites [see NEW REM. for 1882, p. 337].

It can be readily manufactured in large quantities and at small cost. A firm in Kehl, Baden (Ohlgarth & Co.) supply it pure at the rate of one mark per kilo, or less than twelve cents per pound.

Besides the powder, the following preparations have been employed: Ethereal solution, 10% for injections and also solutions in oil for injection or external application in skin affections. Ointments of various strengths can be made with lard or petrolate, and bougies with cacao-butter. Bandages made by sprinkling or rubbing the powder into muslin, and then moistening with water. Gauze, made by dipping in an ethereal solution of 1 part to 4 of ether and 12 of alcohol. Naphthalin jute, 1 kilo of compressed jute steeped in a solution of 100 grams of naphthalin in 400 grams each of ether and alcohol, and then dried, makes a beautiful, silky, white absorbent dressing. Naphthalin wool is prepared by first boiling the wood in soap-lye, and then steeping it in an ethereal solution of naphthalin. Anschütz and Djankenow prefer one part of naphthalin to four of alcohol and four of sulphuric ether.—Summary in *Amer. Journ. Med. Sci.*

Kaposi states that care should be observed in its local application, to avoid surfaces denuded of epithelium, and never to apply it to the entire body; with these precautions it is entirely without danger. In eczema, it is indicated only in the scaly stage, when the diseased skin is but slightly congested or even pale. In scabies, one application of a mixture of naphthol, chalk, green soap, and lard usually suffices for a cure. In various forms of acne, good results follow the use of naphtholin. Pediculi are quickly exterminated by a ten-per-cent solution in olive oil.



An Apparatus for Securing Pure Rain-Water.

"ENGINEERING" describes a simple contrivance for obtaining pure rain water, which is intended for use by photographers, but which would be equally serviceable for pharmacists. A gentleman of Newcastle, England, having tried various filters for purifying the rain-water collected on the roof of his house, at length hit upon the plan of allowing no water to run into the cistern until the roof had been well washed. After adopting the contrivance here shown, he had no difficulty in obtaining water of extreme purity, notwithstanding Newcastle is a very smoky place. The sketch of the mechanism requires little explanation. The weight *W*, and the angle of the lever *L* are such that when the valve *V* is opened, it goes fully open, and then serves as a dam to deflect the course of the water downward into the cistern. The weight needs some care in its adjustment, as do the angle of the lever and the capacity of the vessel *C*. The latter is provided with a small opening near its bottom, from which its contents can slowly escape. This allows the valve to return to the position shown in the drawing. A removable strainer should be placed midway in the depth of the vessel *C* to prevent leaves and other kind of dirt from clogging the hole near the bottom. When once adjusted, the apparatus requires no further care than an occasional inspection and the removal of debris which may have collected on the strainer.

Note on Asbestos Filters.

BY P. CASAMAJOR.

AN extensive dealer in wares used by chemists, lately informed me that he had many inquiries concerning asbestos for filtering liquids in chemical analysis. Some chemists complain that they cannot get clear solutions through asbestos, while others, who obtain clear solutions, find that their liquids filter altogether too slowly.

Allow me to recall that the method of making asbestos filters, by pouring a thin paste of this material over a perforated platinum disc, was first proposed by me in 1875,* but I neglected to give directions concerning the preparation of asbestos, to make it fit for filtering liquids in chemical analysis. It now appears, however, that such directions would be found useful, and I propose to repair the omission and give the necessary details.

The kind of asbestos to use is a matter of some importance. I have tried three kinds, which are sold by dealers in New York as the *Canadian*, the *Italian*, the *Australian*. This last is less flexible than the other two, and consequently the fibres do not felt together and pack as closely on the perforated plate. Hence, liquids filter more rapidly, and the Australian is, on this account, preferable to the other two kinds. I am informed that the Canadian asbestos is the most soluble in acids, but I have not verified the assertion.

Whatever may be the kind of asbestos used, the following is a process for obtaining, with little trouble, a quantity of the pulp in a fit state for filtration:

A coarse brass sieve is placed over a sheet of paper, and a handful of asbestos is rubbed pretty roughly over the sieve-cloth. This breaks it up in such a way that the smaller fragments pass through the meshes, and are deposited on the paper underneath. After a while, the portion which remains on the sieve-cloth is collected in one bundle, and rubbed again in the same manner, and the operation is repeated until a sufficient quantity has gone through. In a few minutes enough of the material is obtained to last for months.

As to the coarseness of mesh to use, I may say that I have used No. 10 sieve (ten openings to the inch) with satisfactory results. The sieve is best placed bottom up, so as to leave plenty of room under the cloth.

The next operation is to free the sifted material from dust and from the finest particles. This is easily accomplished by placing the asbestos, as obtained above, over another sieve of finer mesh (about No. 25 or No. 30), and stirring it while water is poured over the sieve. The first water which passes through is quite milky, but it gradually becomes clearer as the washing is continued. The washed asbestos is then put in a beaker glass, and boiled for about half an hour with strong hydrochloric acid (about one part of fuming HCl to four parts of water).

The pulp, after this treatment, is poured over a perforated platinum plate placed in a funnel,† and washed with distilled water until no acidity is shown by litmus paper. The pulp is then taken out of the funnel and strongly heated in a platinum dish. After letting it cool sufficiently, it may be placed in a wide-mouth bottle for future use.—*Journ. Amer. Chem. Soc.*, Nov., 1882, 248.

Remedy for Warts.

PROF. UNNA recommends the continuous application of mercurial ointment containing five per cent of arsenic or a plaster containing in each 0.2 square metre (eight square inches) ten grams (154 gr.) of arsenic and five grams (77 gr) of mercury.

* See *American Chemist*, v., p. 44. *Chemical News*, xxxii., p. 46.

† A perforated platinum disc, having a stout platinum wire soldered with gold in the centre of the disc, can be used in an ordinary conical funnel. The wire finds its place in the stem of the funnel, and keeps the perforated plate in positon. (See *Chemical News* xlvi.. p 8.) A Gooch crucible of sufficient size may also be used for the same purpose.

A New Method of Manufacturing Sodium Sulphide.

THE question of how to manufacture sodium sulphide has occupied the attention of industrial chemists from almost the dawn of what we now understand by industrial chemistry down to our own time. Till recently, the object with which this question was studied was that of modifying the Leblanc soda-process in such wise as to avoid the production of the very undesirable residue of that process, and at the same time to permit of the sulphur of the sulphuric acid used in that process being perpetually recovered for use again. All attempts, however, so to modify the Leblanc process that sodium sulphide shall be its intermediate product, instead of "black-ash," have been unsuccessful; and although for nearly a century every successive failure to do that was followed, after a short interval, by fresh efforts to the same end, it is probable that the idea of converting sodium chloride into sodium carbonate by way of the intermediate production of sodium sulphide has now at last been definitively abandoned. On the one hand, the success of what is known as the "ammonia process," and, on the other hand, the probable realization of new methods of dealing with the residue of the Leblanc process for the recovery of sulpbur therefrom, together with the discovery, some years ago, of the unexpected fact that sodium sulphide, pure enough to yield by treatment with CO_2 sodium carbonate uncontaminated with free sulphur, is absolutely infusible by any method which can be applied industrically, would seem to render all further attempts to realize a sodium sulphide soda-process quite out of the question.

Meanwhile, a demand has arisen for sodium sulphide as a substantive product. There is a demand for it for use in connection with tanning, for use in connection with bleaching jute, for use in the manufacture of pigments consisting in part of sulphide of zinc, and for various other purposes; and this demand has led to the realization of the method of producing it industrially by the wet way which I will now proceed to describe. The method in question is due to Mr. Helbig, of the great chemical works of Aussig, in Bohemia, the co-inventor with Dr. Schaffner of the method of recovering sulphur from alkali-waste. It is already in industrial operation at Aussig, and will shortly be in industrial operationin England also, at the works of Messrs. J. C. Gamble & Son, at St. Helens.

When the residual product of the Leblanc process, known as "alkali-waste," is digested with water under a pressure of about five atmospheres, reaction takes place between some of the water and the greater portion of the calcium sulphide of the "alkali-waste, in accordance with the equation:

$$2CaS + 2H_2O - CaH_2O_2 + CaH_2S_2.$$

There is thus obtained a solution of calcium sulphydrate, capable of reacting on sodium sulphate, to give calcium sulphate and sodium sulphydrate:

$$CaH_2S_2 + NaSO_4 = CaSO_4 + 2NaHS.$$

Up to this point I managed to get myself, some years ago, in some experiments conducted at Mr. Brock's works at Widnes; but I could not see how to get any further. That is to say, having obtained a solution of sodium sulphydrate by heating with water under pressure a mixture of alkali-waste and sodium sulphate, I did not see how to convert the sodium sulphydrate into sodium sulphide. The reaction so constantly in use in laboratories,

$$NaHS + NaHO = H_2O + Na_2S,$$

was, of course, obvious enough; but I could not see how to apply it except by using previously manufactured caustic soda, and to use previously manufactured caustic soda as a raw material for the production of sodium sulphide for industrial applications was, of course, out of the question. Mr. Helbig, however, does use caustic soda to react upon his sodium sulphydrate; but he does not use previously manufactured caustic soda. He obtains what he calls "a passing formation" of caustic soda, in what seems to me a very ingenious and elegant and, at the same time, a very simple way.

Crude Leblanc soda, or "black-ash," as it is called in this country, consists essentially of a mixture of sodium carbonate and calcium sulphide. We have seen that calcium sulphide, when heated with water under pressure, gives two products, one of which is calcium hydrate; and we know that calcium hydrate can react on sodium carbonate to form calcium carbonate and caustic soda. Mr. Helbig takes advantage of this last-mentioned fact by adding a certain quantity of black-ash to the mixture of sodium sulphate and alkali-waste, which he digests with water. The reactions which then take place, no doubt take place practically simultaneously, but they may be most readily explained by supposing them to take place successively; by supposing, that is to say, that water and calcium sulphide first react on each other, producing calcium hydrate and sulphydrate; that the calcium sulphide so produced then reacts on sodium sulphate, giving calcium sulphate and sodium sulphydrate; that the calcium hydrate, which is one of the products of the first reaction, then reacts on the sodium carbonate of the black-ash, producing calcium carbonate and caustic soda, and that the caustic soda, so produced, and the sodium sulphydrate, previously formed, then react on each other, and are both converted into sodium sulphide. The sum of these reactions may be represented by the equation:

$$2CaS + Na_2SO_4 + Na_2CO_3 = CaCO_3 + CaSo_4 + 2Na_2S.$$

The operation is performed in iron digesters, furnished with mechanical agitators—which are kept in motion throughout the operation—and heated by injection o steam. What is drawn off from the digestors when the operation in them is complete, is a solution of sodium sulphide holding in suspension various solid matters. These having been separated by filtration, the solution is evaporated till its density has become about 32° Baumé. During this evaporation any salts other than Na_2S, which may have been originally present, fall and are fished out. The concentrated solution is then allowed to cool, when it gives crystals of the hydrated salt, Na_2S, $9H_2O$.

Just two points more require to be mentioned. It is obvious that in the process just described, the sodium sulphate might be replaced by sodium carbonate—in other words, by more black-ash. The reactions in that case would all be the same as those I have enumerated, except that the sodium sulphydrate would be formed by the reaction of sodium carbonate upon calcium sulphydrate. As the value of sodium carbonate in the state of black-ash is not very much greater than that of sodium sulphate, Mr. Helbig at present prefers that all the sodium used in the process should go into it as carbonate; so that he now really uses, not a mixture of sodium sulphate, black-ash, and alkali-waste, but a mixture of black-ash and alkali-waste only. The reason for this preference is that a much lower pressure suffices to bring about the required reactions when using the latter mixture than when using the former.

The other point is curious. Just as the text-books say that sodium sulphide is a readily fusible body, so they say that crystallized sodium sulphide readily absorbs oxygen on exposure to the air; and just as I have found that pure sodium sulphide cannot be fused at all, on the large scale, in closed vessels made of a material on which Na_2S has no chemical action, so Mr. Helbig has found that crystallized sodium sulphide, as produced by his method, absorbs oxygen on exposure to the air only very slowly indeed. The difference between its behavior in this respect and that of sodium sulphide made in other ways, Mr. Helbig attributes to the latter always containing small quantities of caustic soda, whereas his crystals are quite free from caustic soda. —*Journ. of Soc. of Chem. Industry* and *Pharm. Journ.*

Ergot in Delirium Tremens.

DR. ARNOLDON has used ergot in several cases of mania-à-potu, with the effect of speedily controlling the delirium. He explains its action by its influence in contracting the cerebral blood-vessels.—*Med. Record* from *Deutsche Med Zeit.*

Contributions to the Chemistry of Tartaric and Citric Acids.

A PAPER with the above title, by the late Beaumont J. Grosjean, was read, on Nov. 16th, before the Chemical Society of London. Mr. Warington, who read the paper, said that for five years, 1870–75, he had worked in the laboratory at Millwall with the author of this paper, who had since then been the sole chemist till his death in June, 1882. Mr. Warington had, with the consent of Sir J. B. Laws, compiled from the laboratory note-books of the late author an abstract of his numerous unpublished investigations.

1. "*On the Different Rates of Loss of Different Specimens of Citric Acid in Dry Air.*" Three specimens of different samples of citric acid were powdered and placed in two desiccators over fresh oil of vitriol on April 21st, 1880. On May 6th, one specimen had lost 0.68 per cent; the second, 6.25 per cent; the third, 8.55 per cent. On May 15th, the first had lost 1.75 per cent; the second, 8.55; and on June 26th, the first specimen had lost 8.47 per cent. The theoretical amount of moisture present was 8.57 per cent.

2. "*Determination of Citric Acid in Lemon and other Juices.*" The method used by precipitation, with chloride of calcium, etc., has already been described (*Chem. Soc. Journ.*, 1875, 931). It appears that the precipitable acid in commercial concentrated lemon-juice is, on the average, very nearly equal in quantity to the free acid present. Thus, in sixty-five analyses, representing eight hundred and ninety-five pipes, the precipitated acid averages 99.2 per cent of the free acid; some exceptional samples gave numbers from 85.8 per cent to 103.6 per cent. In Bergamot juice the average number from ninety pipes was 98.4 per cent; in lime juice, 91 to 92 per cent; in orange juice, about 68.5 per cent of the free acid was found to be precipitable. Thus, while the determination of the free acid gives trustworthy results with lemon juice, it furnishes with lime and orange juice a very unsafe guide to the quantity of citric acid present.

3. "*Influence of Heat on Solutions of Tartaric Acid.*" Forty grams of tartaric acid were dissolved in water and concentrated till a crust formed. The acidity was now reduced to 97.9 per cent of the original acid, while the ortho-tartaric acid, precipitated by potassium citrate, was only 74.6 per cent. On diluting and boiling for two hours, the solution gave 99.9 per cent free acidity, and 99.9 per cent ortho-tartaric acid. The meta-tartaric, formed as above, is also slowly reconverted into ortho-tartaric acid by standing in dilute solution at the ordinary temperature, Thus the percentage of ortho-tartaric acid in the above solution increased after standing two months from 74.6 to 90.

4. "*Influence of Sulphuric Acid on the Crystallization of Tartaric Acid.*" Sulphuric acid considerably diminishes the solubility of tartaric acid. Much more tartaric acid crystallizes out from a saturated solution in dilute sulphuric acid than from a hot aqueous solution: the latter deposits only 50 per cent of its tartaric acid on cooling, whilst a hot solution in one volume of water and one and a half volumes of oil of vitriol deposits 70 per cent of its tartaric acid.

5. "*Actions of Solutions of Potassium and Sodium Sulphates on Calcium Tartrate.*" In the ordinary manufacture of tartaric acid, moist gypsum is added to decomposed neutral tartrate of potash and precipitate calcium tartrate. Under certain conditions this reaction is reversed, and if the solutions of potassium or sodium sulphate be sufficiently strong, practically the whole of the tartaric acid in calcium tartrate may be brought into solution as potassium or sodium tartrate.

6 and 7 are omitted, being only titles.

8. "*Determination of Free Sulphuric Acid in Tartaric Acid Liquors.*" To ascertain when enough sulphuric acid has been added to decompose the calcium tartrate, the workman usually adds a few drops of calcium chloride solution. If a precipitate appears in a few minutes, free sulphuric acid is present. It is proved in the present paper that this test, with certain precautions as to time and dilution, may be used quantitatively.

9. "*Determination of Tartaric Acid by Precipitation as Acid Potassium Tartrate.*" The ordinary method consists in the precipitation of tartaric acid with an excess of potassium citrate, washing the precipitated bi-tartrate with a five-per cent solution of potassium chloride saturated with bi-tartrate, and determining by titration the acidity of the precipitate. This method is subject to two errors, one of excess due to the precipitation of an acid citrate. The author concludes that in all accurate determinations it is necessary to make preliminary experiments with graduated quantities of potassium citrate to discover the proportion which gave a precipitate of maximum acidity. This being ascertained, a final determination was made with this quantity, the precipitate thoroughly washed, and its acidity determined. If much sulphuric acid is present, the result is usually about 1 per cent in excess of the truth.

10. "*Detection of Tartaric Acid in the Presence of Citric Acid.*"—Cailletet's bichromate test (*Chem. Soc. Journ.*, abstracts, 1879, 674) [United States Pharmacopœia, 1882, p. 13, under Acidum Citricum, ED. NEW REM.] gives satisfactory results.

11. *Determination of Organic Acids from Neutralizing Capacity of the Ash of the Salts,*—With potassium or sodium salts the ignition must be effected by a spirit-lamp, *i. e.*, at a low temperature to avoid loss.

12. "*Standardizing of Alkali used in Titrations.*"—The best material for this purpose is acid potassium tartrate; it is easily prepared pure, can be dried at 100°, is not hygroscopic, and being of low acidity, a large weight can be taken.—*Chem. News*, 1882, Nov. 24.

The Preparation of Neutral Tannate of Quinine.

JULIUS FIEBERT gives the following method for preparing a neutral tannate of quinine, which in all respects appears to be identical with that made by Rozsnyay (of Arad, Hungary) whose formula is secret.

Twenty parts of officinal sulphate of quinine are mixed with eighty parts of distilled water and afterwards with about twenty parts of diluted sulphuric acid until the salt is dissolved. The solution is diluted with distilled water until a volume of about 1,000 parts is attained, and the filtered solution mixed, under constant stirring, with a solution of 40 parts of carbonate of sodium in 160 parts of distilled water. The resulting precipitate of hydrate of of quinine is collected in a paper filter, well washed with cold distilled water, and after having been allowed to drain, dissolved, while still moist, in 200 parts of 90-per-cent alcohol. This solution is filtered and the filtrate allowed to fall, in drops, into a freshly-made, cold and clear solution of 60 parts of tannic acid in 1,000 parts of water. The mixture is allowed to stand for several hours, with occasional stirring, and then set aside to settle. The copious, almost white precipitate is then collected on a paper filter previously moistened with distilled water, and washed with distilled water at a temperature of 30° C. (86° F.) hy means of a wash-bottle, until the washings cease to have an astringent taste. The residue, after draining, is allowed to dry upon the filter, placed upon a layer of filtering paper which is laid on a wooden support or a hair-sieve, at a temperature not exceeding 30° C. (86° F.) and is then rubbed to powder. The yield is 60 to 65 per cent of the sulphate of quinine employed.

In the preparation of the tannate of quinine, no iron or other metallic vessels must be used, since they would impart a color to the product.—*Zeitschr. d. Oesterr. Apoth. Ver.*, Nov. 1st.

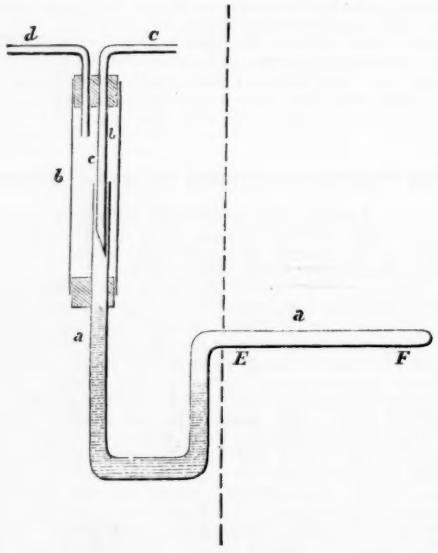
[There still exist good grounds for doubting whether neutral tannate of quinine retains sufficient of the therapeutic properties of the alkaloid to warrant its use in medicine. In considering the advantage gained as regards the comparative tastelesness of this compound, its probable inertness as a remedy should also be borne in mind.—ED. N. R.]

On the Absorption of Certain Salts from the Alimentary Canal.

MATTHEW HAY, M.D., publishes, in the *British Medical Journal* of December 16th, observations on the peculiarity attending the absorption of sulphate of soda, sulphate of magnesium, and phosphate of soda, which tend to prove that, in the case of the two first-named, the acid rapidly disappears from the intestinal canal during the first hour after the administration of the salt, this being most marked in the case of sulphate of magnesia. At the end of this period, the acid returns to the canal, but this takes place most rapidly in the case of the soda salt. The base also is absorbed, but only very slowly, and in amount no greater than will permit of its simultaneous excretion by the kidneys; and at no time was noted, as in the case of the acid, a tendency to return again to the cavity of the intestine.

Experiments with phosphate of soda showed no evidences of such primary rapid absorption of the acid as occurred in the case of the sulphates.

Dr. Hay does not attempt any explanation of the cause of the sulphates splitting up in the intestine, or of the combination, if any, in which the acid enters the blood.



Regulator for Gas-Supply.

ACCORDING to the suggestion of M. Thomas, a tube, *a*, thrice bent, as shown in the cut, is made to enter by one end into a larger tube, *b*, and by the other end, *E F*, into the oven. The U-shaped portion of the tube is filled with mercury. The cork closing the upper orifice of the larger tube carries two small glass tubes, one conducting the gas and the other discharging it. But the latter tube is cut off obliquely at its lower end, and reaches more or less far down into the tube *a*; it also has a small hole at about *t*. When the oven or furnace is heated by a gas-burner, the air contained in *E F* becomes dilated, and causes the mercury to rise in the other leg. At a certain temperature, the mercury closes the lower orifice of the tube *c*, thereby shutting off the supply of gas, excepting so much as can pass through the small hole at *t*, whereby the total extinction of the flame of the burner is prevented. When the temperature falls again, the mercury recedes and again permits the passage of the gas until the critical point of temperature is again reached.—*Bulletin Comm.* (*L'Un. Pharm.*).

Falsification of Commercial Peptones with Gelatin.

COMMERCIAL peptones are frequently adulterated with gelatin, according to Dr. Freire, but it is not easy to detect this, since the ordinary reagents which precipitate gelatin, also precipitate the peptones. Sulphate of magnesium, it is true, throws down only the gelatin, but it is difficult to decide how much of the reagent is wanted, because it must be added in the form of solid salt, and must then be supersaturated so that the magnesia may precipitate with the gelatin. And even then the precipitation is not complete. On the other hand, bichromate of calcium answers much better. This may be obtained by incompletely saturating an aqueous solution of chromic acid with carbonate of calcium.

The solution of peptone to be examined is diluted with pure distilled water, until an almost transparent liquid is obtained. To this is added, drop by drop, the concentrated solution of bichromate of calcium, until no more gelatin is precipitated. The mixture is then filtered, which operation may be hastened by using a vacuum-pump; the residue is dried, and weighed as gelatin.

Some peptones examined by this method (Chapoteau's) yielded seven grams of gelatin per liter.—*Annali di Chimica*, 1882, 231.

[The presence of only 105 grains of gelatin in two quarts of peptone would appear to indicate that it was due to its existence in the material peptonized rather than to an intentional falsification. We are inclined to doubt the accuracy of Freire's observations, but quote his method of examination for whatever it may be worth.—Possibly, also, the quantity of gelatin alleged to have been found by Freire, may be a misprint.—ED. N. R.]

New Process for the Extraction of Fish-oil.

A FOREIGN exchange, speaking of the processes of extracting fish-oil, invented by Messrs. Moride and Joulie, says: The oil in fishes is contained in the network of the tissues, and cannot be liberated until they are destroyed, either by putrefaction or by the application of heat. In both these cases, the oil is subjected to an alterative process of a more or less decided character. It has, however, been noticed that under the influence of certain substances, the albuminoid matters, which form the tissues, contract, become tighter, and cause the oil to exude in a cold state, and in a condition of remarkable purity. The substances which produce this effect are notably lime, perchloride of iron, the sulphates of peroxide of iron, and the chlorides and sulphates of alumina. Of all these reagents, the salts of iron produce the best results, because they cause the disinfection of the substances to which they are applied, and, at the some time, secure them against putrefaction.

In the industrial application of this theory to fish, the inventors sprinkle it with five per cent of its own weight of a solution of perchloride or persulphate of iron at 45° Baumé; it can then be easily kept three or four days, either entire or in pieces, without undergoing any alteration. It is passed into a machine which crushes it, and reduces it to a thick paste, which is received in bags and taken to the press. A rather large quantity of water is forced out, bringing with it the liquid oil contained in the fish. The cake which is withdrawn from the press dries readily, becomes very friable, and is easily pulverized. It still contains a small quantity of fatty material, less liquid than oil, which can be extracted by a solvent, such as benzin or carbon disulphide. The greater part of this fatty material can also be obtained by submitting the cake to a second pressure between heated plates of metal.

The cake, freed from oil, dried and pulverized, forms an excellent fertilizer, containing seven to ten per cent of nitrogen and ten to fifteen per cent of phosphate of lime, according to the substance which has been employed in the anterior processes.

The Volatile Products of Putrefaction.

In a paper laid before the French Academy, Dr. G. le Bon states that, as the result of his latest experiments on the antiseptic properties of the glyceroborates of sodium and calcium, he comes to the following conclusions:

First.—The disinfecting power of any antiseptic is in inverse ratio to the age of the putrefying material. A solution of chopped meat, six days old, will require a much smaller proportion of disinfectant than when it has been kept, say for a couple of months, when the amount required will be ten times greater.

Secondly.—If we wish to measure the power of antiseptics by taking as a basis their disinfecting properties, when applied to chopped meat of normal strength (1:10), we shall find that the most powerful compounds are, potassic permanganate, calcic hypochlorite, ferrous sulphate acidulated with acetic acid, carbolic acid, and potassic and sodic glyceroborate. For instance, in order to disinfect 10 cubic centimeters of the normal chopped meat-solution mentioned above, we must take 500 cubic centimeters of a saturated solution of salicylic acid, 80 of a saturated solution of carbolic acid, 80 of a 10-per-cent solution of sodic glyceroborate, and several drops only of a one per cent solution of potassic permanganate.

Thirdly.—There is no parallelism in the disinfecting action of an antiseptic and its action on microbes; potassic permanganate, for instance, although a most powerful disinfectant, exercises no power whatever on these organisms. On the other hand, alcohol which, after a long time, checks their development, only acts as a very weak disinfectant.

Fourthly.—There is no parallelism between the power of an antiseptic in preventing putrefaction and its power of checking it, when once set up. Alcohol and carbolic acid, which are powerful preventives of putrefaction, act but feebly when putrefaction has once commenced. Carbolic acid, therefore, when used in surgery, acts rather as a preservative than as an antiseptic.

Fifthly.—With the exception of a very small number of bodies, such as corrosive sublimate, and other powerful poisons, the greater part of the antiseptics now in use, more especially carbolic acid, have but a very feeble action on bacteria. If we mix 20 cubic centimeters of the above-mentioned normal solution of chopped meat with 50 or even 100 cubic centimeters of a saturated solution of carbolic acid, the larger bacteria are rendered motionless, while the smaller ones retain their vitality and powers of reproduction. The author possesses carbolized solutions four months old, still rich in bacteria. In fact, so far from looking on carbolic acid as a destroyer of bacteria, the author looks on it as the best material for preserving their lives.

Sixthly.—The experiments hitherto made upon the cadaveric alkaloids have not solved the question as to whether the odorous volatile alkaloids evolved during putrefaction are poisonous or not, seeing that the products of putrefaction introduced into the body in these experiments contain bacteria to which the resulting poisonous effects may or may not be attributed. After trying many experiments, the author simply introduced a number of frogs into a vessel, the bottom of which was covered with a layer of the normal meat solution already mentioned. When putrefaction first set in, although large quantities of sulphuretted hydrogen and other fetid products were evolved and the liquid swarmed with bacteria, the frogs did not seem to suffer in slightest degree, although, had an infinitesimal portion of the liquid been injected into an elephant, the animal would infallibly be poisoned. The same liquid kept for two months and then being harmless when injected subcutaneously, killed the frogs in a few minutes when they were compelled to breathe its vapor. There is, therefore, no parallelism between the toxic properties of a putrefying liquid and of its emanations. On the contrary, they seem to be in inverse ratio, that is to say, the newer the liquid the more toxic it is, the older the liquid the more toxic are its exhalations.

Seventhly.—The small quantity of these volatile toxic alkaloids which is sufficient to kill animal life when breathed, shows them to rival nicotine, prussic acid, and other powerful poisons in their virulence.

Eighthly.—The author's experiments show why accidents have arisen when bodies have been exhumed after having been buried for a long time. The air of old cemeteries, although nearly free from microbes, is nevertheless extremely poisonous. The volatile products of putrefaction generated by microbes appear therefore to play an important part in contagious and infectious diseases.—*Comptes Rendus de l'Academie Française des Sciences.*

Filtering Apparatus.

A very simple apparatus for filtering water is that here described. Take a glass tube about one yard long and of about one-fourth inch bore, and bend it twice at a right angle, as shown in the cut, so that the longer leg is about six times as long as the shorter. To the shorter leg is fastened, by means of a perforated cork, a wider glass tube, about 4¾ inches long and about ⅞ inch wide (inside); this tube is filled with absorbent cotton (freed from fat), a small piece of perfectly clean sponge being laid next to the cork, and a similar piece being used to close the other opening of the tube. In place of the narrow glass tube, a rubber tube may also be used. The apparatus is started like any other kind of siphon, and will be found to work well in all cases where the liquid is not too much loaded with suspended matters.

On the Determination of Alkaloids as Picrates.

According to Hager, most of the alkaloids, albumins and albuminoids may be estimated as picrates by precipitating their sulphates in an aqueous solution by means of solution of picric acid. As the precipitates are easily soluble in water, they must be washed with a saturated solution of picric acid. By pressing the filter between blotting paper, the excess of the solution of picric acid may be removed so completely that no weighable trace of picric acid will remain on drying. The last traces of it might also, if necessary, be removed by washing with petroleum ether. The precipitates may be removed from the filter without appreciable loss. During drying, the temperature should not rise above 40° C. (104° F.).—*Zeitsch. f. Anal. Chem.*, 1882, 590.

On Phenacetolin.

W. FRESENIUS furnishes some corrections to an abstract of an article by Paul Degener on phenacetolin, and which abstract we translated in our volume for 1882, p. 116. His attention was drawn to the errors by the subsequent statements of Lunge, who made use of the substance as an indicator in titrating caustic soda in presence of carbonate.

Phenacetolin is scarcely colored *yellowish* by *alkalies* or *alkaline earths;* with *carbonates* it forms a *deep-red* compound, soluble in the case of alkalies, and insoluble in that of earthy bases. *Acids* color phenacetolin distinctly *golden-yellow.* Hence, if a little of the indicator be added to a solution containing carbonate alongside of caustic soda, the liquid is scarcely tinted yellowish; if now acid be added, and there be still some caustic soda present, the liquid will turn momentarily rose red, but, on stirring, will become again colorless. As soon as all the free alkali has been neutralized, and only carbonate is present, the pale-red color remains. (In presence of alkaline earths the carbonates of which are not at once attacked by the acid, after the free base has been neutralized, the red tint first formed may disappear momentarily on the addition of more acid, but will make its appearance again after a short time.) The amount of acid consumed up to this point corresponds to caustic soda. If now more acid be added, the color increases to dark-red, turns to yellowish-red near the end, and, when all the carbonate is neutralized, changes to pure golden-yellow. The amount of acid consumed up to this point corresponds to carbonate. A direct titration of caustic alkali, free from carbonate, with the aid of this indicator, will probably be less successful, since the red tint will not be able to show itself at all, or at least but momentarily.

In his first communication, Lunge highly recommends phenacetolin as an indicator in titrating caustic soda in presence of carbonate; in his second communication his criticisms are less favorable, and he recommends it only in those cases in which the amount of carbonate present is not too small. He states, at the same time, that the indicator behaves towards sulphide of sodium in the same manner as towards the carbonate, and that it is also immediately reddened by ammonia.—*Zeitsch. f. Anal. Chem.*, 1882, 557.

Laurus Californica.

THIS tree, which is also known under the name *Umbellularia Californica*, is one of the most widely distributed, as well as one of the largest and handsomest of the valley trees of California. It is an evergreen, and its wood is much used in ornamental cabinet work.

The leaves, when crushed, have a powerful and pungent odor, which is generally considered very pleasant unless too strong. The same odor, but fainter, is given out by the wood when it is freshly cut. The fruit, which is abundant, consists of a berry somewhat larger than the olive, and of about the same shape, inclosing a smooth seed, something less in size than an olive. The seed or nut has a thin hard shell, and a large, dry kernel.

In common parlance, the *Laurus Californica* is known as the California bay-tree. Attention has been called to it of late by the recent discovery in the nut above described of a new acid belonging to the fatty series, which has been isolated and studied by Messrs. J. M. Stillman and E. C. O'Neill, two industrious American chemists.

The nuts being divested of their shells and fleshy husks, are well ground in a mortar and digested with ether in a percolating apparatus. The ether is then distilled off, leaving a pure fat which solidifies on cooling to a hard tallowy mass, melting at 31° to 32° C., and having, in the melted state, a specific gravity of 0 925 at 31°. Its taste is disagreeable, producing irritation in the throat, due perhaps to a certain amount of free acid. The fat dissolves readily in ether and benzol, but only sparingly in alcohol. On analysis, it gives carbon 71.24, hydrogen 11.91, whence the authors have given it the formula $C_{22}H_{11}O_4$, showing it to be a member of the acetic series, and they give it the name of *umbellulic acid.* When purified as completely as possible, it is a white crystalline solid, of a peculiar taste, which irritates the mucous membrane of the throat. It distils at ordinary pressure without decomposition, boils at 270° to 275°, and forms a series of ethers with methyl, ethyl, amyl, etc., which can be prepared in the usual manner by passing hydrochloric-acid gas into the corresponding alcoholic solutions, and are mobile fragrant liquids. Some of these promise to become products of considerable interest. As it is, the discovery of a new acid of the acetic series will form the starting-point, should it be confirmed, of a number of very interesting researches.

Syrup Filter.

THE drawing represents an arrangement for filtering syrups, oils, fats, extracts, etc., copied from the journal of the *Austrian Apotheker-Verein*, where it is credited to M. Prikryl, of Austerlitz.

It is an iron vessel, with acid-proof enamel lining. The upper vessel has an open bottom, over which any straining coth can be fixed, and is held fast by an India-rubber ring. The capacity of the apparatus described is eight litres for *a*, and ten litres for *b* The total cost is estimated at eight florins.

The Plantain as a Styptic.

THE following abstract of a paper read by Dr. Quinlan at the recent British Pharmaceutical Congress may prove of interest to medical readers in this country, where the plant mentioned is a common weed:

"About a year ago Dr. Quinlan had seen the chewed leaves of the *Plantago lanceolata* successfully used to stop a dangerous hemorrhage from leech bites in a situation where pressure could not employed. He had searched out the literature of the subject, and found that, although this herb is highly spoken of by Culpepper and other old writers as a styptic, and alluded to as such in the plays of Shakespeare, its employment seems to have died out. Professor Quinlan described the suitable varieties of plantain, and exhibited preparations which had been made for him by Dr. J. Evans, of Dublin, State Apothecary. They dried leaves and powdered leaves, preserved with glycerin, for external use; the juice preserved by alcohol, as also by glycerin, for internal use; and a green extract. He gave an account of the chemistry of the juice, from which it appeared that it was not a member of the tannin series, and also described its physiological effect in causing a tendency to stasis in the capillaries of the tail of a gold-fish, examined with a microscopic power of four hundred diameters. He regarded its styptic power as partly mechanical and partly physiological. The juice, in large doses, he had found useful in internal hemorrhages. The knowledge of the properties of this plant, he thought, would be useful in cases of emergency, because it could be obtained in any field and by the most uninstructed persons."

Kern's Cataplasm.

THIS local remedy, recommended by Prof. Busch for producing the resorption of buboes and of malignant lympho-sarcomas of the neck, is made by mixing one part of powdered black mustard with four or five parts of soap. It is inclosed in thin gauze, and applied over the tumor, where it is allowed to remain from four to twelve hours. The skin becomes erysipelatous, and is dressed, after the removal of the poultice, with vaseline and cotton. Following the application, the tumor softens and disappears. Prof. Busch offers no explanation of the remarkable action of this remedy.—*Med. Record.*

Carbolic Acid and the Carbolates.

THE following résumé of the properties and effects (physiological and otherwise) of carbolic acid and its compounds, according to the most recent works on the subject, appeared in the *Progrès Medical*, No. 46, 1882:

Crystallized carbolic acid is soluble in fifty parts of water (when chemically pure in twenty parts, Binz, Hager), and in every proportion in alcohol, ether, chloroform, sulphide of carbon, glycerin.

Absorption is rapid, even through the skin when intact. Elimination is rapid by the skin, lungs, and kidneys.

In the urine, when the acid has been introduced in small quantities, a phenol sulphate, non-toxic, is found; when the doses have been large, another phenol compound is found (Baumann). The urine is very often of an olive-green or greenish-gray color, particularly when the acid has been absorbed through the skin, or through a wound. In some cases, but rarely, albumen has been found. *Principal physiological effects:* In the dose of from five to seven grains it has no toxic effect.

In larger doses, up to thirty grains, it induces excitation, stupefaction, vertigo, ringing in the ears, feebleness, diminution in frequency of the pulse, fall of temperature, colic, and diarrhœa. In toxic doses, it causes vertigo, delirium, stupor, anæsthesia, analgesia, intermittence and final arrest of heart in diastole; very rarely convulsions, collapse, coma, and death. *Counter-poisons:* Sucrate of lime (Husemann), sulphate of sodium and the other sulphates (Bausmann), inhalations of oxygen, bleeding, transfusion (Ferrano).

The local effect produced by weak solutions is a sensation of burning, which disappears in the course of half an hour. This is the effect produced by hypodermic injection of Hueter's solution, which contains two per cent of the pure acid; it gives rise also to ecchymosis of limited extent, but without the formation of an abscess. Hueter employs it in hypodermic injection, to prevent the spread of erysipelatous inflammations to the adjoining skin; five or six injections, of twenty drops each, are made in the skin, just around the part affected, and are repeated a second time the same day; very often the spread of the inflammation is arrested.

Hypodermic injections of carbolic acid have been employed in intermittent fever, by Jessier, Declat, Hueter, Hirschberg; in prurigo, by Rezek and Fleischmann; in diphtheria, by Frotz; in phthisis, by Schnitzler; in crural neuralgia and pleuro-pneumonia, by Hayem and Kunze; in typhoid fever, by Declat; in malignant pustule, charbon, by Raimbert and Meplain (solution, 1 in 50); in nævus, by Badley; in acute articular rheumatism, by Senator, Kunze, and Golbaum.—*Med. and Surg. Reporter.*

Inhalations of Alcohol in Croupous Diphtheria.

DR. C. R. MELSHEIMER used the following method of administering alcohol in a severe case of this disease. Eighty-eight per cent alcohol was maintained at a temperature of 150° in the medicine cup of an atomizer, and was inhaled at a temperature of 120°, reaching the air passages in a strength of about forty per cent. These inhalations were kept up at intervals of two hours, about fifteen minutes being consumed in each application. The effect of each inhalation was to arrest the intermittent character of the pulse and to render it fuller, to make breathing less difficult, and facilitate expectoration.—*Med. and Surg. Reporter.*

Absorption by the Skin.

M. AUBERT, in a recent paper before the Académie, formulated the following conclusions respecting the capacity of the skin for absorption of soluble substances:

1st. Substances dissolved in water may penetrate the epidermis without apparent external erosion. 2d. Nevertheless, the one condition essential to the accomplishment of this penetration appears to be an epidermic effraction about the hair follicles. 3d. In his experiments he has found that the penetration of dissolved substances takes place only over the regions covered with hair. 4th. All conditions which induce traction on the hairs, such as friction, etc., favor absorption. 5th. Fine skin and a thin epidermis are rather unfavorable conditions, on account of the feeble hair development in these regions; the total absence of hair is also a very unfavorable condition as regards absorption. 6th. It is possible that a small proportion of any soluble substance may penetrate the epidermis, and this means of absorption may be utilized by baths or without. To bring about absorption, it will be necessary, both before and during the time the substance is in contact with the skin, to make prolonged frictions with the palm of the hand over the cutaneous surface, especially over regions covered with hair. The only inconvenience attending such practice is very moderate inflammation and a slight degree of redness, generally localized at the points where the hairs emerge. 7th. The simple bath, without friction, even prolonged (for two hours in several cases), cannot be depended on to induce the absorption of the smallest particle of the substance in solution.

Therapeutic Uses of Quinoline.

THE experiments upon the effects of this remedy appear to establish the following facts. It causes a notable fall of temperature, gastric derangement, and tinnitus aurium. In a toxic dose, it causes increased frequency of respiratory movements, diminishes, and finally abolishes reflex excitability, paralysis, and death (often attended with pulmonary œdema). It and its salts have antiseptic properties. It will serve in certain cases as a cheaper substitute for quinine. The tartrate and hydrochlorate have been used hypodermically, but the latter is apt to cause local irritation. The tartrate is preferable for this purpose, being soluble in either water or alcohol, and not particularly liable to cause irritation. The hypodermic dose is from five to fifteen grains for an adult. Salts of quinoline have been used with varying effects in intermittent and typhoid fevers, neuralgia, whooping-cough, pneumonia, erysipelas, septicæmia, etc, but its actual therapeutic value is, as yet, undetermined.

Resorcin as a Remedy for Cystitis.

DR. J. ANDEER (*Centralbl. f. die Med. Wissen.*, Sept. 3d, 1881) reports extensive use of resorcin in acute and chronic cystitis, and claims for it almost specific curative power. He reports 156 cases where, either by him or to his personal knowledge, it was injected into the human bladder with the best results in vesical catarrh. Acute cases have been entirely caused by the injection of a five-per-cent solution.—*Am. Journ. of the Med. Sci.*, Jan., 1883.

Diethylacetate and Dimethylacetate as Anæsthetics.

DR. MERING, at a recent meeting of German naturalists and physicians reports experiments with two anæsthetics of the ethyl and methyl series. The former has a burning, pungent taste, the latter a disagreeable taste and smell. Both produced narcosis rapidly in frogs and rabbits, with slowing of the heart's action, and, finally, weakening of respiratory movements, acting, when inhaled, much like chloroform. When the former was tried on criminals it acted well, causing narcosis without bad after-effects.

Sulphate of Quinine in Colic.

DR. N. R. DERBY, of Bergen Point, N. J., writes in the *Medical Record* of December 2d, that he discovered, by accident, that a dose of eight to ten grains of sulphate of quinine will speedily put an end to an attack of colic. Since childhood he had himself been a frequent sufferer from this distressing trouble, but since this discovery he has been able to arrest an attack either in himself or others. His observations extend over a period of three years, and have embraced many cases.

Dialyzed Iron.

DR. PROSSER JAMES has lately said, in a summary of the position which dialyzed iron is entitled to hold in medicine, that the persalts of iron are frequently employed solely on account of their astringency, while the protosalts are occasionally considered as being destitute of this quality The freshly-prepared carbonate is an excellent mild chalybeate, but difficult to keep in an unaltered state, so that preference is given to reduced iron. The scale preparations of iron are held in repute, both from the extreme facility of their use, and their agreeable taste. When these three forms of iron are inadmissible, dialyzed iron may be resorted to with admirable effect. It is a milder chalybeate than the three preceding, and does not produce the slightest irritation.

A recent analysis by Professor Tichborne of Wyeth's preparation agrees almost exactly with Graham's statement, that dialyzed iron contains 98.5 parts of the oxide and 1.5 parts of hydrochloric acid. The liquid thus obtained differs altogether from an ordinary solution of salts of iron, by its not giving rise to the blood-red color on the addition of alkaline sulphocyanide, nor to the blue precipitate with ferrocyanide of potassium. It does not become cloudy on boiling, nor when agitated with two parts of ether and one part of alcohol is the ether layer colored yellow. It is so sensitive that ordinary spring water will cause a precipitate, yet no precipitate is produced by nitric, acetic, or muriatic acid. Graham's solution gelatinized in about twenty days, and he regarded it as a solution of colloid ferric hydrate which, he considered, existed in both a soluble and insoluble form. It is, however, never free from chlorine. Theoretically, therefore, the liquid is a solution of a basic oxychloride, but it can never be imitated by dissolving saturated solutions of the hydrate. All these artificially-made liquors are astringent, with ferruginous taste and acid reaction.

Respecting the therapeutic value of dialyzed iron, of which there has lately been some inclination to doubt, Dr. James says there is no question. By the method now followed of counting blood-corpuscles, it is found that the taking of dialyzed iron both increases their number and improves their condition. Dr. James gives, as an average dose, twenty to fifty drops, daily, in three doses. Dr. Weir Mitchell, of Philadelphia, gives as much as a drachm at a time.

Specimens have appeared in the market which are not only innocent of any acquaintance with a dialyzing membrane, but seem little else than diluted solution of perchloride of iron.—*Chem. and Drugg.*

Therapeutic Use of Hyoscyamine.

DR. T. BROWNE, of Yarmouth, has published in the *British Medical Journal* (November 25th, p. 1,030) the results of his experiments upon the therapeutic value of hyoscyamine. He used in his experiments Merck's crystalline hyoscyamine, and arrived at the following conclusions concerning its use: That the action of hyoscyamine when given by the mouth is very uncertain and dangerous; that no curative action could be claimed for it, although it proved capable of moderating, in maniacs, violence of action, and of soothing without causing sleep; that hypodermic injection was the only safe method of using the drug. The following formula was the one employed, but while satisfactory as regards strength, it was found to lack stability:

Hyoscyamine (Merck's crystallized)	4 grs.
Glycerin and distilled water, of each ..	½ oz.
Carbolic acid	2 min.

Dissolve without heat.

Of this solution, four to eight minims are injected hypodermically. Dr. Browne states that it is very important to make the solution without heat, as heat renders the alkaloid nearly inert. He finds that the strength of any solution yet devised cannot be depended on for more than a month.—*Pharm. Journal.*

Sulphur in Malaria.

THE *Lancet* of October 21st, commenting upon the belief that the active agent in the production of malaria consists of low organisms, speaks of the influence of sulphur emanations in preventing the disease, and quotes some recent observations by M. D'Abbadie to demonstrate that such influence really exists. In Sicily deposits of sulphur and intermittent fevers are both common, but occur for the most part at different elevations. In some places the sulphur deposits are found at a low elevation in malarial plains. In these districts the laborers in the sulphur works enjoy an almost complete immunity from intermittent fever, not more than eight or nine per cent suffering, whereas of the inhabitants of neighboring villages not less than ninety per cent are attacked. In some travels in Greece, published by M. Fouqué, is an account of the ruins of a large city (Zephyria) situated in a marshy plain, in which it is impossible to pass the night without being attacked by ague. Three hundred years ago, it is said, the city contained forty thousand inhabitants and thirty-eight churches. Paludal fevers gradually destroyed the population. Twenty years ago only two hundred inhabitants remained languishing and ill. They refused to leave the place, and the last of them died during Fouqué's visit. It is certain that malaria cannot have prevailed to the same extent during the period at which the town was in its rise and full development, and it is also noteworthy that the soil beneath the town contains abundant deposits of sulphur which was formerly worked in its vicinity, and the decadence of Zephyria dates from the discontinuance of these sulphur workings. Moreover, Fouqué has noted another instance of the same relation. The marshy plain of Catania is traversed by the Simeto, and is infected by fever. On the western border of this plain are some sulphur works, at which are a number of inhabitants who suffer little, although a village not far away is deserted. In Ethiopia certain elephant hunters expose their naked bodies daily to a fumigation of sulphur in the belief that this will preserve them from malaria, and certainly they enjoy an almost complete immunity from this disease, although some of the districts are so unhealthy that not long ago a whole caravan perished.

Large Doses of Arsenic in Chorea.

JAMES SAWYER, M.D., in the course of a clinical lecture delivered in Queen's Hospital, Birmingham (*Brit. Med. Journ.*, Dec. 23d), exhibited a girl ten years old who, in being treated for subacute general chorea, had taken "Fowler's solution," in doses increasing from five to thirty-five minims, thrice daily. Not till then did toxic effects occur, and the chorea cease. After entire suspension of the drug for two days, it was continued for a time in doses of fifteen minims, and the chorea did not recur. The doctor said: "You may cautiously increase the dose of liquor arsenicalis, far beyond the limits of the text-books, with the best results in chorea."

Alcoholic Solution of Sulphurous Acid.

SULPHUROUS acid, which is known to have given some excellent results in catarrhal affections, as a disinfectant or antiseptic, etc., is not much used except in the form of gas resulting from the combustion of sulphur. Its solution in water is supposed not to keep, and it is rarely to be met with in the pharmaceutical laboratory. But why should we not keep it as well as solution of hydrochloric acid or ammonia, etc.? One volume of water will dissolve nearly fifty times its bulk of sulphurous acid gas at the temperature of 20° C., and with the barometer at thirty inches. Mr. John Gamgee proposes to use the *alcoholic solution of sulphurous acid*, a product which he considers well worthy the attention of medical practitioners. This solution contains three hundred times its volume of sulphurous acid. It is therefore a means of procuring very large quantites of this useful agent, hitherto so little employed, in a very small bulk, and supplies us with a valuable medical and hygienic agent.

Bromide of Ethyl for Spasmodic Cough.

DR. WILLIAM SQUIRE recommends a solution of one part of bromide of ethyl in two hundred parts of water as a remedy for whooping-cough, and also in angina pectoris. This is of similar strength to the chloroform water of the British Pharmacopœia, and its dose is the same, viz., one-half to two ounces.

On the Presence of Chlorine in Oxygen Gas Prepared from Chlorate o Potassium.

SCHÖNBEIN observed that chlorate of potassium, heated with a little ferric oxide, yielded oxygen gas contaminated with chlorine. Pettenkofer & Voit have also noticed the presence of chlorine in oxygen gas prepared from a mixture of chlorate of potassium and binoxide of manganese (or powdered quartz, or oxide of copper). A. Wagner having also made this observation, determined to ascertain the cause, and we quote here the results he arrived at :

Oxygen gas prepared from commercial chlorate of potassium (at least from that used by Wagner) is always contaminated with chlorine. On the other hand, chemically pure chlorate of potassium yields a gas completely free from chlorine, provided every trace of organic substances or carbonic acid gas is absent. Carbonic acid may decompose even chemically pure chlorate of potassium, when heated, so as to liberate some chlorine ; the same effect is caused by organic substances, and, in this case, the residue has a strongly alkaline reaction. The presence of chlorate of calcium may also produce the separation of a little free chlorine, as has been already noticed by Wächter.—*Zeitsch. f. Anal. Chem.*, 1882, 507.

New Reactions of Thymol and Carbolic Acid.

A MIXTURE of 1 part of carbolic acid, 1 part of thymol, and 9 parts of alcohol, treated with ammonia and hypochlorite of sodium, was found, by A. Fabian, to turn greenish-blue, which tint remained on diluting with alcohol, and afterwards with ether. On being diluted with water, the liquid became almost entirely colorless, and, after the addition of ether, shaking and allowing to settle, the liquid became clear, forming two layers; the upper having a rose-red tint, and the lower one being blue. The former indicates the presence of thymol, the latter that of carbolic acid. If alcohol be added to this mixture, the color of the ethereal layer disappears, both layers coalesce, and the liquid assumes its former greenish-blue color. A new addition of ether, however, again produces the rose-red tint, which may be again destroyed by the cautious addition of alcohol; and this change of color may be varied, repeatedly, by the careful alternate addition of either one or the other liquid.—*Wiadom. farmaceut.*

Substitute for the Sand-Bath.

FROM time immemorial chemists have used a sand-bath where a temperature is to be obtained higher than that of the boiling of water or of oil. The method is not wholly rational, however, sand being a very bad conductor of heat. Herr Kristalba has lately recommended the substitution of pounded fragments of graphite: they let the heat pass much better, do not oxidize, and do not soil the inclosing vessel. *L'Electricité* commends the method to electricians who have to make researches in thermo-electricity, adding that small shot of iron would serve nearly the same purpose. For more intense heats, it is known, melted lead can be used.

Aqueous Solutions of Salicylic Acid.

ACCORDING to W. Alexejeff, solutions of salicylic acid are obtained by heating the acid with water in closed tubes slightly above 100°. When they are cooled quickly, the whole becomes a crystalline magma, but when they are cooled slowly, peculiar results are obtained, the acid separating sometimes as an oil and sometimes in crystals. A few examples of these results are given: Solutions containing 73.01 and 66.71 per cent of the acid solidify suddenly respectively at 68° and 67°; whilst those containing 61.2, 42.90, to 21.20, or 4.57, become turbid at 76°, 90.5°, or 63°, and deposit the acid as an oil; solutions containing 2.96 per cent become turbid at 49°, and the acid separates in crystals; solutions made at 12.5 contain 0.16 per cent of salicylic acid; at 66°, 1.27 per cent; at 81°, 2.44 per cent; at 100°, 8.67 per cent. From these facts, the author infers that there are three different kinds of solutions, viz.: 1st. Solutions of water in salicylic acid. 2d. Solutions of the acid in water which deposit, on cooling, the "liquid acid." 3d. Solutions of the acid in water depositing, under similar conditions, crystals of the acid. The "liquid acid," is an example of the first kind, and the supernatant liquid, which is highly refractive, of the second or third; for the same solution may be classed in either one of these, according to the temperature at which it is prepared, inasmuch as all solutions made below 100° contain the "solid acid," whilst those made above 100° contain the "liquid acid."—*Journ. prakt. Chem.*

Separation of Asparagin.

UP to the present time, no special precipitant of asparagin was known, and it was not easy to separate it completely and sharply from large quantities of other organic substances. E. Schulze, however, has found that an aqueous solution of mercuric nitrate produces a white precipitate in an aqueous solution of asparagin, from which the latter body may be again isolated by decomposing the compound with hydrosulphuric acid.—*Berl. Berichte*, 1882, 2,855.

Soluble Salts of Caffeine.

CAFFEINE, being sparingly soluble, can only be hypodermically injected in very small doses. At ordinary temperatures it requires seventy-five parts of water to dissolve it; it is, moreover, only faintly alkaline, and does not form stable salts with acids. Acetic, valerianic, lactic, and citric acids do not form definite salts with it; they augment its solubility in water without combining with it. Mineral acids, such as hydrochloric, sulphuric, and hydrobromic acids, form definite salts, obtainable in crystals, but they are not stable, and water decomposes them into free acid and caffeine, which is precipitated if there is not sufficient water present to hold it in solution. Benzoic, cinnamic, and salicylic acids form very soluble double salts with it, and cinnamate of sodium dissolves caffeine in water equivalent for equivalent (107 parts of cinnamate of sodium for 244 of caffeine). The double salt thus obtained contains 58.9 per cent of caffeine. The benzoate of sodium and caffeine contains two equivalents of benzoate of sodium or 288 parts, and one equivalent of caffeine or 244 parts, which is equal to 48.5 per cent of caffeine. The salicylate of sodium dissolves caffeine most easily of all; and one equivalent or 160 parts of salicylate of sodium dissolves one equivalent or 244 parts of caffeine, which gives 61 per cent of caffeine in the salt. With these new salts, therefore, it would be quite possible to administer caffeine hypodermically, as one might often wish to do in cases of Bright's disease. These double salts are readily prepared by simple solution of the salt or the caffeine in water in the proportions just given.

Adulteration of Glycerin.

DR. E. GEISSLER reports, in the *Pharm. Centralhalle*, that a firm doing business at Prague (Bohemia), is selling a spurious glycerin, for technical purposes, which was found to be composed of water, chloride of magnesium, glucose, and dextrin. Its spec. gr. was 1.269. When evaporated on the water-bath, it left a residue of a brown color, and which became almost entirely dry and friable at 105° C. It amounted to 53.2 per cent. The firm designated it, in their correspondence, as "glycerin chemically pure," or "chem. glycerin, white, 30°," but stated also that it was unsuited for internal use."

Cosmetic Preparations.

Rose-Bandoline.—Digest 800 grains of tragacanth with 1 quart of rose-water for two days at a gentle heat in a closed vessel. Strain the mixture, and perfume it with oil of rose.

Or, macerate 1 part of quince seed with 40 parts of rosewater for several hours, repeatedly agitating; strain the mixture, and perfume it with oil of rose.

Almond-Bandoline.—Prepared like the preceding, except that oil of bitter almonds is used for scenting.

If either of the above are wanted colored, an ammoniacal solution of carmine may be used.

Brilliantine.—Mix 1 part of glycerin with 3 parts of castor oil and 60 parts of alcohol.

Perfume according to taste.

Crême de Mauve.—Mix 1 part of glycerin with 1 part of alcoholic extract of jasmin, and color with a little fuchsine.

Used to impart gloss to the hair.

Oleolisse Tonique (de Piver).—Dissolve 5 parts of castor oil in 15 parts of alcohol, and flavor with oil of bergamot or oil of Portugal.

Hungarian Cosmetic.—Melt 30 parts of white wax on a water-bath, and add 20 parts of powdered almond soap, and 20 parts of a solution of 1 part of gum arabic in 60 parts of rose-water. Stir the mixture until it cools, and perfume it with 1 part of oil of bergamot, or ½ part of oil of rose.

By adding umber or lamp-black, the mass may be colored brown or black.

Bay Rum (artificial):

Tincture of bay leaves	6 oz.
(1 of bay leaves, 10 of alcohol.)	
Oil of bay	60 grains
Borax	1 oz.
Carbonate of ammonium	1 oz.
Rose-water	1 quart.

Extrait Végétal:

Essence of vanilla	2 parts
(1 of vanilla, 30 of alcohol.)	
Extract of orange flowers	1 part
" " jasmine	1 "
" " rose	1 "
" " tuberose	1 "
Alcohol	16 parts
Rose-water	20 "

Amandine (for softening and beautifying the skin).—Make a syrup from 1 part of sugar and ½ part of water. Mix 8 parts of the syrup with 2 parts of almond soap cream, until a homogeneous mass is obtained, to which is to be added, under constant stirring, 200 parts of almond oil, previously perfumed with 2 parts of oil of bitter almonds, 2 parts of oil of bergamot and 1 part of oil of cloves.

The mixture of the almond oil with the syrupy mass requires some practice and, particularly towards the end, when the mass becomes stiffer, a considerable expenditure of force.

Almond Soap Cream is prepared by melting 250 parts of pure lard and mixing with the melted fat 100 parts of solution containing 25 per cent of caustic potash. The latter must be added very slowly, and under constant stirring. When all is added it is gradually allowed to cool, the stirring being continued. It is then transferred to a mortar, and triturated with addition of 6 part of alcohol and ½ part of oil of bitter almonds, until it is creamy and homogeneous.

Olivine.—4 parts of powdered gum arabic and 12 parts of honey are intimately mixed, and the mixture triturated with 6 parts of Castile soap and with 2 yolks of egg for every ounce of gum arabic used. To this is gradually added, under continued trituration, a previously prepared mixture of 60 parts of finest olive oil, 2 parts of oil of sesame, 2 part of oil of bergamot, 2 parts of oil of lemon, 1 of oil of cloves, ⅛ of oil of thyme and ⅛ of oil of cinnamon, and the whole thoroughly triturated until a homogeneous mass results.

Almond Paste.—16 parts of blanched bitter almonds are rubbed to a fine paste, and this is gradually added to an intimate mixture of 30 parts of honey, 15 parts of yolk of egg, 30 parts of almond oil, ½ part of oil of bergamot and ½ part of oil of cloves.

Rose Milk (Lait de Rose).—1 part of finely rasped Castile soap is dissolved, with a very gentle heat, in 4 parts of rose-water; 1 part of white wax and 1 part of spermaceti are next added and, when they are melted, a strained almond mixture is added, prepared from 16 parts of blanched sweet almonds and 1000 part of water. The addition must be made gradually and under continuous stirring. Finally, 150 parts of alcohol and 8 parts of oil of rose are finally incorporated with the mixture.

Frangipanni Sachet Powder.

Orris root, powdered	1,500 parts.
Vetiver "	120 "
Sandal wood "	120 "
Oil of neroli	2 "
" rose	2 "
" sandal wood	2 "
Musk bag, powdered	20 "
Civet	5 "

Heliotrope Sachet Powder.

Orris root, powdered	1,000 parts.
Rose leaves, "	500 "
Tonka bean, "	250 "
Vanilla, "	120 "
Musk	4 "
Oil of bitter almond	3 "

Cachou Aromatisé.

Mace	420 grains.
Cardamom	80 "
Cloves	40 "
Vanilla	120 "
Orris root, powdered	150 "
Musk	4 "
Sugar	300 "
Licorice root, powdered	500 "
Oil of peppermint	32 drops.
Oil of lemon	20 "
Oil of neroli	12 "
Oil of cinnamon	6 "
Pure extract of licorice	q. s.

Comminute the solid ingredients, form them into a pilular mass with the extract of licorice, and divide it into granules, weighing one grain each. Coat them with silver-leaf.—A. VOMÁCKA in *Pharm. Zeit.*

Eau de Brettfeld.

DIGEST 230 parts of Florentine orris-root with 2,000 parts of Cologne spirit for three days in a warm place. On the other hand, dissolve seventy drops of oil of lemon, 60 drops of pure oil of rose, 70 drops of oil of neroli (bigarade) in 300 parts of Cologne-spirit, and digest 0 15 parts of musk in the solution. Finally mix the two liquids and filter. The product has an agreeable violet-like odor.

The residuary orris-root may be used for other purposes, such as "potpourri," etc.

Eau de Cologne.

A VERY pleasant and refreshing Eau de Cologne, much resembling that sold with the trade-mark "Springbrunn," may be obtained as follows:

Dissolve 15 parts of oil of orange-peel, 15 of oil of lemon, and 6 of oil of bergamot in 3,000 parts of finest cologne-spirit. (It is absolutely necessary that only the purest and finest oils and alcohol be used.)

Also dissolve 1 part of oil of neroli (pétale) and 1.5 parts of oil of orange (petits grains) in 1,000 parts finest rectified rye-spirit.

After standing for five or ten days, both liquids are mixed. It is best to distil the mixture, since the odors are

better blended thereby; but it may also be aged by allowing it to stand for a time.

To the distillate are added 2 parts of the finest oil of rosemary, and the liquid then put up in small well-corked vials, which must be kept in a cool, shady place.

Tooth-powder.

a) *Black:*

Wood-charcoal,	in fine powder	28	parts.
Oyster-shell,	" "	4	"
Orris root,	" "	4	"
Catechu,	" "	2	"
Cinnamon,	" "	2	"
Myrrh,	" "	1	part.

Another:

Wood-charcoal,	in fine powder	4	parts.
Cinchona bark,	" "	1	part.
Oil of cloves		q. s.	

b) *Red:*

Digest four to five drachms of powdered cochineal with a boiling-hot solution of 90 grains of pure carbonate of potassium in 2 fl. oz. of water; after several days, separate the liquid from the insoluble matter by pressing; triturate the liquid with a mixture of 16 oz. of powdered oyster-shells, 8 oz. of powdered cuttle-fish bone, 3 oz. of powdered orris root, and 150 grains of burnt alum, and finally scent it with equal parts of oil of cloves and of bergamot.

Or scent it with oil of peppermint, of which about 160 minims dissolved in 2 fl. oz. of alcohol may be incorported with the powder.

Another:

Cinchona,	in fine powder	4	parts.
Sandal-wood,	in fine powder	8	"
Alum,	" "	1	part.
Oil of cloves, Oil of bergamot,	} equal parts	q. s.	

c) *White:*

Cuttle fish bone,	in fine powder	1	part.
Oyster-shell,	" "	1	"
Oil of peppermint or oil of sage		q. s.	

Tropic Fruit Laxative.

ADAM CONRATH gives the following approximative formula for the preparation sold under the name of "Tropic Fruit Laxative": Jalap tubers, powdered; senna leaves; sugar, of each five parts; pulp of East India tamarinds (of the consistence of a stiff extract), thirty parts.

Having rolled out the mass with a rolling-pin to a thickness of one-fourth of an inch, it is to be cut with a tin mould to a size of one inch long by seven-tenth of an inch wide, to weigh forty to forty-five grains. The lozenges should be coated by a confectioner with chocolate and sugar, after which each one may be wrapped in thin tin-foil. Mr. Conrath says that the objection to dispensing this form of a confection of senna is the liability of the laxative portion to become worm-eaten, in which case, those who do not first remove the chocolate and examine the central mass are apt to swallow worms and all — *Pharmacist.*

Application to Chilblain.

TWO correspondents of the *Pharm. Zeitung* recommend the following applications:

a. In the case of chilblain with broken skin:

Yellow wax	15	parts.
Rape-oil	50	"
Yolk of egg	1	part.
Acetate of lead	5	parts.

M.

b. When the skin is intact:

Tincture of iodine	2	parts.
Ether	15	"
Collodion	50	"

Stimulating Potions.

IN the translation of a series of lectures on the treatment of pneumonia by Dujardin-Beaumetz, of Paris, published in the Boston *Medical and Surgical Journal*, the formulas are given for the following potions for use in this and similar affections of an adynamic character.

Potion of Todd (Dorvault).

Old brandy	60	parts.
Distilled water	90	"
Simple syrup	40	"
Tincture of canella	10	"

Mix.

Gubler's Alcoholic Mixture.

Alcohol of 85%,
Water,
Syrup of orange-peel.....of each equal parts.

A tablespoonful to be given every two hours.

Alcoholic Potion of the Paris Hospital.

Cognac or rum,
"Potion diacode"... .....of each equal parts.

(The latter ingredient consists of 30 parts of syrup of poppies and infusion of tilia, 100 parts.)

Jaccoud's Alcoholic Potion.

℞ Red wine	100	parts.
Spt. of canella	8	"
Watery ext. of cinchona	4	"
Cognac	30 to 90	"
Syrup of orange-peel	30	"

M.

A tablespoonful to be given every two or three hours.

Mistura Vini Gallici, Ph. B.

R Spt. vini gallici,		
Aquæ cinnamomi	āā	ʒ iv.
Vitelli ovi		ij.
Sacchari		ʒ ss.
Ol. cinnamomi		♏ ij.

M. Sig. A tablespoonful as occasion may require.

A New Baking Powder.

V. KREHAN, in Austria, has invented a baking powder which is made of one hundred and eighty parts of crude alum, seventy-five parts of bicarbonate of soda, and fifty parts of the "less basic" phosphate of lime. This last ingredient, which is denominated "less basic phosphate," is the product obtained by pouring a ten-per-cent hydrochloric acid on an equal weight of bone meal burnt white. On pouring water upon this baking powder, carbonic acid is formed, and sulphate of soda and potash, while the alumina separates. The alum is completely decomposed, so that the inventor considers it harmless. One ounce is sufficient for one and a half pounds of flour.

[We quote this for the purpose of adding the remark that we do not share the opinion of the harmlessness of the compound.—ED. N. R.]

New Invisible Ink.

C. WIDEMANN communicates a new method of making an invisible ink to *Die Natur*. To make to writing or the drawing appear which has been made upon paper with the ink, it is sufficient to dip it into water. On drying, the traces disappear again, and reappear by each succeeding immersion.

The ink is made by intimately mixing

Linseed oil	1	part
Water of ammonia	20	parts
Water	100	"

[The mixture must be agitated each time before the pen is dipped into it, as a little of the oil may separate and float on top, which would, of course, leave an oily stain upon the paper.]

Kemmerich's Extract of Meat.

THE new brand of extract of meat, made by E. Kemmerich & Co., of Santa Elena, Argentine Republic, has been analyzed by G. E. Lichtenberger, and been found to contain:

		(Fray-Bentos).
Water	16.53	22.26
Organic matter	62.65	57.51
Salts (ash)	20.82	20.23
	100.00	100.00
Among the constituents are:		
Nitrogen	9.25	7.42
Phosphoric acid,		
in the ash	33.12	30.46
in the extract	6.89	6.16
Potash,		
in the ash	44.83	40.82
in the extract	9.25	8.27

The second column contains the figures obtained from a sample of the extract made by the original Fray-Bentos Company, analyzed at the same time. We do not, however, attribute much value to the figures obtained for the latter, since we know that the composition slightly varies, and that samples have been in the market containing much less water, and, therefore, more of the various solid constituents.

Reliquet's Injection for Chronic Cystitis.

CRYSTALLIZED carbolic acid is dissolved in from one thousand to two thousand parts of distilled water. After washing out the bladder with water of the temperature of the body, the bladder is slowly and fully distended with this solution, and after its discharge is again washed out with warm water. It is said to give no pain when properly prepared, but to act as an astringent, modifying the denuded surfaces and hindering absorption.—*N. Y. Med. Journal* from *L'Union Méd.*

Waterproof Coating for Stone, Wood, Metals, etc.

A MIXTURE is prepared by melting together 90 parts of paraffin, 30 parts of palmitate of aluminum, and 15 parts of wax. The substances to be coated should be heated to a temperature of 60° to 90° C. (140° to 194° F.). This forms the subject of a patent (Germ. Pat. 19,298) issued to G. Gehring, of Landshut.

Palmitate of aluminum is prepared by precipitating a solution of a palm-oil soap with alum.

Preparation of a permanent Test-Solution of Starch.

ALEXANDER MUELLER recommends, for this purpose, to triturate the starch with strong solution of caustic potash, whereby, as is well known, it rapidly swells up. By dilution with water a solution is obtained with gradually becomes quite clear, and which is said to keep for years. When using it, however, it is necessary to take care that to liquid to be titrated has sufficient excess of acid to neutralize the alkali of the starch solution.—*Landw. Vers. Stat.*, 27, 340 in *Zeitsch. f. Anal. Chem.*

Glycerin and Glue.

A GERMAN chemist named Puscher, a native of Nuremberg, reported to the trades-union of that place that he met with great success in using glycerin together with glue. While generally, after the drying of the glue, the thing to which it is applied is liable to break, tear, or spring off, if a quantity of glycerin equal to a quarter of the quantity of glue be mixed together, that defect will entirely disappear. Puscher also made use of this glue for lining leather, for making globe-frames, and for smoothing parchment and chalk paper. He also used it for polishing, mixing wax with the glycerin, and using it as an underground for laying on aniline red color. The red was found to exceed all others in which glycerin is not used. The glycerin has also some properties in common with India-rubber, for it will blot out pencil-marks from paper, so as to leave no mark whatever. A paste made of starch, glycerin, and gypsum will maintain its plasticity and adhesiveness longer than any other cement, and therefore recommends itself for cementing chemical instruments and apparatus used by pharmacists.

Preservation of Sulphate of Iron.

A. GAWALOVSKI introduces into the saline mass (of sulphate of iron precipitated by alcohol) or into the crystals a thick-walled test-tube half filled with an alkaline solution of pyrogallic acid and glass-wool, in such a way that the top of the tube projects sufficiently over the level of the mass. If the vessel is well closed, the sulphate of iron will be perfectly preserved for two or three years, as the author has found by repeated experiment.—*Zeitschr. f. Anal. Chem.*, 1883, 33.

Chloroform Water.

CHLOROFORM water is obtained by pouring into a bottle, three-quarters filled with distilled water, an excess of chloroform, agitating several times and allowing to settle, until the chloroform has entirely separated and the aqueous solution is perfectly transparent. This solution now contains 9 per cent of chloroform.

Experiments have shown that the presence of the chloroform does not modify the solvent power of the water upon various salts, such as chlorate or bicarbonate of potassium, or borate or salicylate of sodium.

Though it is easy to devise a formula for a syrup of chloroform, or to administer it in an alcoholic vehicle, the authors think that chloroform water is fully sufficient for internal administration. It has an agreeable taste, and leaves a refreshing taste in the month, which lasts for some minutes after it is introduced, without leaving a persistent after-taste, such as is the case with ethereal, etc., solutions. The authors consider it to be superior to anything else, as a basis or vehicle, or excipient for administering other medicines.

The property of maintaining its taste in the mouth for several minutes, make chloroform water a valuable vehicle for administering nauseous or bitter medicines. It may also, with advantage, be associated with castor oil, various emulsions, etc.

Besides serving as a vehicle for other medicines, however —and it may be used as such in almost all cases, since there appear to be but few instances (see below) where its use would be injurious—it has a positive therapeutic action upon the mucous membranes it comes in contact with. In the stomach it undoubtedly has an excitant action. But it acts differently, according as it is introduced just before, or during, or after meals.

Given just before eating, chloroform water is apt to impair the appetite; but, after eating, if taken by itself or in some sweetened wine, it increases the stimulating effects of the latter. It is particularly valuable as an agent to counteract the many affections caused by a deranged digestion. Its maximum therapeutic effect is exhibited three or four hours after meals, at a time when the functional disturbances show themselves by yawning, intestinal tension or gaseous eructations, or a sensation of pressure in the epigastrium, pain in the region of the heart, flushing of the face or attacks of vertigo.

On the other hand, if the digestive troubles betray themselves by lancinating stomach pains, by anxiety, angina, a transient febrile sensation, dryness of the mouth, painful tympanites, palpitation, etc., the action of chloroform water is injurious In fact, any excitant is contra-indication at this stage.—LASÈGUE and REGNAULT, after *Répert. de Pharm.*, 1882, 421.

Novel Mode of Making Syrup Phosphate of Iron.

PLACE at the bottom of a beaker or flask a strip of platinum foil, and over it 2 oz. of fine iron wire. Then pour in 1 lb. of dilute phosphoric acid Ph. B. [corresponds to 10 per cent. by weight, of anhydrous phosphoric acid, or the same as that of the U. S. P. of 1882.—ED.]. The iron soon dissolves under the influence of the electric current excited, and the action should be allowed to go on for a day or two, or until the formation of a light-blue cloud shows that the acid has formed as much of the salt as it can hold in solution. Then filter through white blotting paper, add 1 oz more of acid, 24 ozs. of white sugar, and 8 fluid ozs. of syrup of black currants. This will make 3 lbs. of a very pleasant non styptic syrup, with an average dose of one teaspoonful, and costing altogether (without the platinum foil, which is, of course unaffected) but 2*s.* [about 50 cents]. Syrup of black currants is very nice, and costs but 3*d.* [6 cents] a pound. Ordinary sulphate of iron, in 1 or 2 grain doses, in this syrup, seems as nice and as efficacious as the more popular phosphate.—*Br. Med. Jour.*

Defective Weights and Measures in England.

THE *Pharmaceutical Journal* of December 16th, speaking of an examination that had lately been made of the weights and measures used by the pharmacists in an English city, says: The shops visited were twenty-four in number; in only 4 instances were all the weights and measures found correct, and in 16 cases summonses were issued and convictions followed. Altogether 1,207 weights and 127 measures were examined. Of the weights, 128 were found too light, 97 were too heavy, and 59 were illegal only in being unstamped. Of the measures, 31 were found incorrect. There were also 54 scales tested and 17 proved untrue. The nature and extent of the default may be seen from the following table, setting out the amount of error in the weights seized in two cases in which convictions were obtained.

First Case.

Denomination of Weight.	Error.
6 grains	$\frac{9}{10}$ gr. light.
5 grains	$\frac{3}{10}$ gr. light.
4 grains	1 gr. light.
2 drachms	1½ gr. heavy.
2 scruples	$\frac{3}{10}$ gr. heavy.
1 scruple	$\frac{9}{10}$ gr. heavy.
½ scruple	$\frac{6}{10}$ gr. heavy.

Second Case.

Denomination of Weight.	Error.
6 grains	$\frac{9}{10}$ gr. light.
5 grains	$\frac{7}{10}$ gr. light.
4 grains	$\frac{4}{10}$ gr. light.
3 grains	$\frac{7}{10}$ gr. light.
1 grain	$\frac{3}{10}$ gr. light.
2 drachm	$\frac{6}{10}$ gr. heavy.
1 drachm	$\frac{4}{10}$ gr. heavy.
½ drachm	$\frac{6}{10}$ gr. light.
1 scruple	$\frac{6}{10}$ gr. heavy.
½ scruple	$\frac{3}{10}$ gr. heavy.

Cotton-Seed Oil: Some of its Uses in Pharmacy, and its Detection when mixed with Olive Oil.

BY S. S. BRADFORD, PH.G.

HAVING had occasion, during the last six years, to manufacture lead plaster in considerable quantities, it occurred to me that cotton-seed oil might be used instead of olive oil, at less expense and with as good results. The making of this plaster with cotton-seed oil has been questioned, as according to some authorities the product is not of good consistence, and is apt to be soft, sticky, and dark-colored, but in my experience such is not the case. If the U.S.P. processs is followed in making this plaster, substituting for the olive oil cotton-seed oil, and instead of one-half pint of boiling water one and one-half pint are added, the product obtained will be equally as good as that from olive oil. My results with this oil in making lead plaster led me to try it in making the different liniments of the pharmacopœia, with the following results:

Linimentum Ammoniæ.—This liniment, made with cotton-seed oil, is of much better consistency than when made with olive oil. It is not so thick, will pour easily out of the bottle, and if the ammonia used is of proper strength, will make a perfect liniment.

Linimentum Calcis.—Cotton-seed oil is not at all adapted to making this liniment. It does not readily saponify, separates quickly, and it is almost impossible to unite when separated.

Linimentum Camphoræ.—Cotton-seed oil is far superior to olive oil in making this liniment, it being a much better solvent of camphor. It has not that disagreeable odor so commonly found in the liniment.

Linimentum Chloroformi.—Cotton-seed oil being very soluble in chloroform, the liniment made with it leaves nothing to be desired.

Linimentum Plumbi Subacetatis.—When liq. plumbi subacet. is mixed with cotton-seed oil and allowed to stand for some time, the oil assumes a reddish color similar to that of freshly made tincture of myrrh. When the liquor is mixed with olive oil, if the oil be pure, no such change takes place. Noticing this change, it occurred to me that this would be a simple and easy way to detect cotton-seed oil when mixed with olive oil. This change usually takes place after standing from twelve to twenty-four hours. It is easily detected in mixtures containing five per cent or even less of the oil, and I am convinced, after making numerous experiments with different oils, that it is peculiar to cotton-seed oil.—*Am. Journ. Pharm.*

The Properties of Some Essential Oils.

F. BEILSTEIN and E. WIEGAND have examined three essential oils obtained from the well-known firm of E. Sachsse & Co., of Leipzig.

a. OIL OF ERECHTHITES.

(*Oil of Fireweed.*)

This consists almost entirely of terpenes $(C_{10}H_{16})x$. From the portion boiling below 200° C. a terpene ($C_{10}H_{16}$) boiling at 175° C. could be isolated by repeated fractionation, finally over metallic sodium. Specific gravity 0 838 at 18.5° C. It absorbs one molecule of hydrochloric acid without separating a crystalline compound.

A considerable portion of the oil boiled above 200° C. The fraction passing over, on repeated distillation, between 240° to 310°, corresponded, after re-distillation over sodium, exactly to the formula $C_{10}H_{16}$.

[Great care must be exercised in peppermint plantations to eradicate every trace of fireweed, which not unfrequently makes its appearance there. A very small quantity is capable of seriously impairing the flavor of pure oil of peppermint.—ED. N. R.]

b. OIL OF ERIGERON CANADENSE.

(*Oil of Canada Fleabane.*)

The chief portion of the oil consists of a terpene $C_{10}H_{16}$, which, after repeated distillation over sodium, had a constant boiling-point at 176° C. (the thermometer being wholly immersed in the vapor). Spec. grav. 0.8464 at 18° C. It absorbs two molecules of hydrochloric acid. If thus saturated and allowed to stand in the cold, crystals of terpene-dihydrochloride ($_{10}H_{16}.2HCl$; melting at 47° to 48° C.) are separated.

c. OIL OF MARJORAM.

From the first portion of the distillation of this oil, a terpene $C_{10}H_{16}$ was isolated, which boiled at 178° C., the thermometer being wholly immersed in the vapor. Spec. gravity 0.8463 at 18.5° C. It absorbs one molecule of hydrochloric acid without forming a solid compound.

The portion boiling at 200°–220° corresponded to the formula $C_{15}H_{26}O = C_{15}H_{24}.H_2O$. The substance used in the analyses had been boiled for several hours with sodium and then been distilled over it. Analysis showed that this did not alter the composition.

The formula $C_{15}H_{26}O$ corresponded to a sesqui-terpene-hydrate ($C_{15}H_{24} + H_2O$); but, as is shown by its behavior towards sodium, it does not contain a hydrooxyl-group.—*Berl. Berichte*, 1882, 2,854.

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 1033.—**Syrupus Calcii Lactophosphatis** (A D.).

The officinal formula (see the new Pharmacopœia, p. 321) works very nicely, if the directions are properly followed.

An almost identical product may be obtained by dissolving lactate of calcium in phosphoric acid. This process has the advantage of being quickly completed; all that is necessary is to weigh the ingredients and shake them together:

SYRUPUS CALCII LACTOPHOSPHATIS.

Lactate of calcium, *five parts*	5
Phosphoric acid (50%), *seven and one-half parts*	7.5
Orange-flower water, *eight parts*	8
Syrup, sufficient to make *one hundred parts*	100

Triturate the lactate of calcium with the orange-flower water and about *ten* (10) *parts* of syrup to a smooth mixture, pour it into a tared bottle, rinse the mortar with syrup, which also transfer to the bottle. Then add enough syrup to make the contents weigh ninety-two and one-half parts. Finally, add the phosphoric acid, and shake until solution has taken place.

Note.—It is advisable to add the phosphoric acid last, rather than to add it to the lactate of calcium or while the liquid is short in volume, since a very difficultly soluble salt (apparently phosphate of calcium) is sometimes formed in this way.

No. 1034.—**Peptones** (Dr. J. G.).

Peptones are substances which are produced by the action of the gastric juice, at the temperature of the body, upon albuminates. They are soluble in water, and do not coagulate. In chemical composition, they differ but slightly from the albuminates. The following summary of the varieties and properties of peptones, taken from *Karmarsch & Heeren's Techn. Wörterbuch*, presents all important facts so far known:

Meissner distinguishes, besides the ordinary peptones, two other varieties, namely, *para-peptone* and *meta-peptone*. The ordinary peptones themselves he divides into *a*, *b*, and *c* peptone. Danilewski (*Centralbl. med. Wiss.*, 1881) assumes that the conversion of albumin into peptone produces intermediate products, which he calls *synto-protalbumins*.

Peptones are obtained by digesting albuminates with pepsin or a freshly prepared infusion of the gastric membrane acidulated with hydrochloric acid at a temperature of 38°–40° C. They may be purified by combining them with barium or calcium, and then again separating these bases. Different albuminates treated in this manner furnish very similar, though not altogether identical, products. If the solution, which is obtained by digestion, is neutralized, *parapeptone* is precipitated. Parapeptones are insoluble in water, easily soluble in dilute acids, readily precipitated from such solution by concentrated solutions of salt, but cannot be precipitated with alcohol. In a solution containing acetic acid, they yield precipitates with metallic salts, tannic acid, and ferrocyanide of potassium. Concentrated acids produce precipitates which are soluble in an excess.

On protracted treatment with a digestive fluid, the parapeptones become gradually less soluble, and are finally separated in an insoluble condition. In this condition, they are called *dyspeptones* by Meissner. They are insoluble in water, alcohol, and diluted acids, and cannot be converted into peptone.

If the fluid obtained by artificial digestion is mixed with a little more acid, another variety of peptone, viz: *metapeptone*, separates. Metapeptones are soluble in water; in a liquid containing 0.1 per cent of an acid they are insoluble, become dissolved on addition of a little more acid, are again precipitated by more acid, and finally, by a fresh addition, are again dissolved. If the action of pepsin upon them be continued, they are transformed into true peptone (hence they belong to the so-called *syntoprotalbumins* of Danilewski). After the removal of para-, dys-, and metapeptones, the liquid contains (besides an intermediary product separable by boiling) only the peptones proper. These are white, amorphous, odorless substances, soluble in water, insoluble in alcohol, having an acid reaction in aqueous solution, and yielding salt-like compounds with bases. They are precipitated from their aqueous solution only by mercuric chloride, ammoniacal solution of acetate of lead, or tannic acid. Acids, metallic salts, and ferrocyanide of potassium produce no precipitates. They are not coagulable, and turn the plane of polarized light strongly to the left.

The three kinds of peptone distinguished by Meissner have the following properties:

a-peptone (Adamkiewciz' peptone, Kuehne's hemialbuminose, Schmidt-Mühlheim's propeptone) is precipitated by concentrated nitric acid and also by ferrocyanide of potassium.

b-peptone is not precipitated by nitric acid, but by ferrocyanide of potassium in presence of a considerable quantity of acetic acid.

c-peptone is not precipitated by either of the beforementioned agents.

According to Ruppert and Hofmeister (*Ber. d. Deutsch. Chem. Ges.*, VI., 1278), peptones are supposed to be mere mixtures of leucin, tyrosin, and at least two other decomposition-products of the albuminates. The nature of the chemical process, by which the peptones are formed, has not yet been clearly established; most authorities at present hold that it mainly consists in the addition of water, an increase of about six per cent by weight being the quantity determined by Danilewski. The peptones contained in the intestinal matters, when passing into the blood and chyle, are at once again reconverted into albuminates. How this is accomplished is not yet known. Injected into the blood, they impart to it for a short time the property not to coagulate outside of the body.

No. 1035.—**Solution of Citrate of Iron and Quinine** (Phar. 2).

The reason why this preparation has been introduced into the U. S. Pharm. is chiefly this, that a demand has been made, quite generally, for a scaled salt of citrate of iron and quinine, which should be more readily *soluble* than that previously officinal. Now, if *two scaled* preparations (differing only in their facility of dissolving) had been introduced into the Pharmacopœia, there would have been constant risk of one being mistaken for the other.

The more difficultly soluble is intended to be administered, not in solution, but in substance, in form of pill, or in suspension in syrup, and through its comparative tastelessness (owing to its slow solubility) forms a very eligible method of giving quinine and iron.

The very fact that there was a demand for a more readily soluble salt proved that the so-called "soluble

citrate of iron and quinine" was mostly used in form of solution. And this fact at once suggested the propriety of leaving the preparation in the form of a permanent solution, rather than to add to its cost the item of scaling it. The solution of citrate of iron and quinine, therefore, represents the more soluble form of the salt, in a liquid state, and it can be furnished at a lower price, than an equivalent quantity of scales, owing to the saving of labor.

No. 1036.—**Iris Versicolor** (Phar. 2).

Our correspondent asks what could have been the reason that *Iris versicolor* has been introduced into the new U. S. Pharmacopœia, while *Iris Florentina* has been dropped. He is not aware that the former has been mentioned lately in medical literature.—In the first place, we must say that our correspondent is in error if he thinks that Iris versicolor is newly introduced. Both species of *Iris* were enumerated in the seconday list of the preceding pharmacopœia. Iris Florentina is, however, almost obsolete as a medicine, and almost entirely restricted to perfumery or tooth-powder. For this reason it was dropped. The other species, *Iris versicolor*, has risen to considerable prominence by the important researches of W. Rutherford on the physiological actions of drugs on the secretion of bile (*Practitioner*, London, 1879, xxiii., 321; 410); and those of Rutherford, Vignal, and Dods on the action of cholagogues (*Brit. Med. Journ.*, London, 1878, ii., 861; 909; 945; 1879, i., 31, 69; 105; 135; 177; 217). In the course of these experiments, it was found that the so-called resinoids "irisin" and "euonymin" had a powerful cholagogue action. And since then not only have large quantities of these rather indefinite resinoids been used in regular practice, but also the solid and the fluid extracts. For this reason, the solid extract of euonymus, and the solid and fluid extract of iris have been introduced into the Pharmacopœia.

No. 1037.—**Foaming of Volumetric Solutions** (Tyro).

We are asked to indicate a ready method for preventing the accumulation of foam on the surface of volumetric solutions filled into burettes.

In reply we must say, that we know of no method to entirely prevent the *accumulation* of bubbles or foam, except by using such a method of filling the burette which will prevent the air from being mixed with the liquid. This may be done either by carefully pouring the test-liquid down along the inner side of the burette, or better, by supplying the liquid from a reservoir standing at an elevated shelf.

We think, however, that the *accumulation* of foam need not trouble you, provided you know how to *remove* it quickly. This may be done in various ways; either by a twisted cone of filtering paper; or by touching the surface of the liquid with a glass-rod (which will, however, not always answer); or by quickly touching the bubbles with the heated end of a knitting-needle or similar metallic article; or, finally—which is very effective, and sometimes the only resort, when the bubbles cannot well be reached otherwise—by allowing ether-vapor to fall upon the surface of the bubbles. By holding a bottle or can of ether so that the heavy vapor will descend into the burette (being careful that no *liquid* ether will flow out), the bubbles may be instantly removed.

No. 1038.—**Tincture of Avena Sativa** (J. A. M.).

We have made inquiries regarding the so-called "Concentrated Tincture of Avena Sativa," and can only say that we cannot ascertain from what portion of oats the preparation is made, nor of what strength it is. We have never heard of any proximate principle existing in oats or in the oat-plant which could be expected to have any special therapeutic properties. The fluid extract offered by some houses is made, as we are informed, from oats and husks of oats mixed.

No. 1039.—**Tooth-wash** (Col.).

Tooth-washes prepared with soap-bark as a base are not injurious to the teeth. Among the published formulæ, we select the following, giving the proportions according to Hager:

Bennet's Tooth-wash.

	Parts.
Quillaia, in moderately coarse powder	20
Glycerin	20
Diluted alcohol	q. s.
Oil of gaultheria	q. s.
Oil of peppermint	q. s.

Macerate the quillaia with the glycerin and 180 parts of diluted alcohol, and enough of the oils to flavor the mixture, for twenty-four hours, occasionally agitating. Then filter and add enough diluted alcohol to make the product weigh 200 parts.

Meyers' Tooth-wash.

	Parts.
Quillaia, in moderately coarse powder	50
Peppermint water	300
Alcohol	300

Macerate for a few days, then add

Cochineal, powdered	1
Peppermint water	100
Glycerin	100
Oil of gaultheria	1.5

Again macerate during one day, occasionally shaking. Finally add

Peppermint water, enough to make	1,000

Lastly filter.

No. 1040.—**Saponification of Cotton-Seed Oil** (Sapo).

This oil is not completely saponifiable. Weak lyes require a considerable time in the cold. Solutions of soda or potassa of sp. gr. 1.040 yield no emulsion when shaken with the oil; the two liquids separate at first, but after continued shaking and the lapse of about an hour saponification takes place. Stronger lyes, of spec. grav. 1.200, yield an emulsion which, when exposed for some time to the air, acquires a bluish-violent coloration on the surface. Concentrated solutions of spec. grav. 1.330 saponify rapidly, with the exception of about 1.85 per cent of an unsaponifiable hydrocarbon of a golden-yellow color. Other fatty oils contain similar unsaponifiable constituents, consisting either of hydrocarbons or of other substances, and varying from about 0.25 to about 1.9 per cent. Water of ammonia shaken with the oil yields a faintly greenish or yellowish-white mixture.

As an interesting piece of statistics, the following figures are here appended:

The United States have produced during the last few years on an average more than 600,000 tons of cotton-seed annually, which yielded about 26,000,000 gallons of oil, 250,000 tons of cake, and over 3,000 tons of shell and fluff, which are used for paper manufacture. Egypt produces annually about 250,000 tons of cotton-seed.

No. 1041.— **Ayer's Hair Vigor** (W. S. D.).

According to the analysis made a number of years ago by Prof. Charles F. Chandler, of New York, this is a plain solution of acetate of lead, containing only about 0.6 per cent of the salt.

No. 1042.—**Solution of Sodium Boro-Salicylate** (Subscriber).

This correspondent desires a formula for a 20-fl.-oz. mixture containing 3¾ ounces of salicylic acid, made with the aid of borax.

We would recommend the following:

Salicylic acid	1,800 grains.
Borax, in fine powder	900 "
Glycerin	q. s.
Water	q. s.

To make 20 fluid ounces.

Heat the salicylic acid and the borax with 3,600 grains of glycerin, at as gentle a heat as will be sufficient to cause solution. Then add 1,400 grains more of glycerin, and finally enough water to make the mixture measure 20 fluid ounces.

The acid and borax may be heated with the whole of the glycerin at once, but as the smaller amount is sufficient, and it might sometimes be useful to have a more concentrated solution, the above formula has been left as originally devised. After the glycerin is all added, the solution contains exactly 25 per cent of salicylic acid. This may be diluted with more glycerin or with alcoholic liquids (for instance, simple elixir) instead of water, without producing a precipitate.

No. 1043.—**Acid-Proof Cement** (Akron).

For your purposes, a cement with a rubber or similar base appears to be the most suitable. Try the following:

Dissolve caoutchouc, by carefully heating, in twice its weight of linseed oil, and then add about twice its weight of pipe-clay. The product forms a very plastic, acid proof mass, which, when heated, becomes somewhat softer, but does not melt. It may be kept for a long time in a damp place without hardening. When it has become hard, it may be rendered soft again by oil of turpentine.

No. 1044.—**Removing Odors from Bottles, Jars, etc.** (W. S. S.).

One of the most simple and effectual means for cleaning vessels in which odorous liquids have been kept, is to wash them with a mixture of powdered black mustard and warm water. Before using this, all visible remains of the former contents should be removed by scalding, scouring, or by agitating shot or pebbles with water in the vessels. Another method is to rinse them with a solution of permanganate of potassium, accompanied or followed by diluted sulphuric acid. In many cases, a solution of chlorinated lime or chlorinated soda will answer the same purpose.

No. 1045.—**Digitalin** (Several Inquirers).

The reason why *digitalin* has been dropped from the U. S. Pharmacopœia is simply this, that, in the present state of our knowledge of the active principles of digitalis, it is impossible to control the identity of any proximate principle extracted from the drug, and, moreover, the peculiar therapeutic effect of digitalis, which is well known, is probably not fully represented by any one of the many principles heretofore extracted from it. Some of these, as Nativelle's crystallized digitalin, have been regarded for some time as actually representing the drug, and this may, indeed, be regarded as almost equivalent to it. But, even Nativelle's *crystallized* digitalin has turned out to be a mixture, the chief constituent of which is Schmiedeberg's *digitoxin*, which is so highly poisonous that Schmiedeberg himself considers it unfit for medical use.

Heretofore, when *digitalinum* was prescribed, it has been customary to dispense the amorphous German alkaloid, prepared by Merck and other manufacturers, usually forming a buff-colored powder. But the therapeutic differences noticed between the products of various manufacturers were often considerable, and there was even no guarantee that the successive products of the same manufacturer would be identical. In the case of digitalis, as in that of many other drugs, much depends upon the kind menstruum used for extracting the drug, or used in the different steps of the manufacture. No American manufacturer ever put upon the market a digitalin prepared by himself according to the process of the former U. S. Pharmacopœia, and physicians and pharmacists had to depend upon a foreign supply. If prepared strictly in accordance with the former officinal process—which is nearly the same as of the Brit. Pharm., and almost the same as that proposed by Henry in 1845 it is probable that the product would have contained about all the useful active principles. Yet it would be impossible to control it; and the modern tendency—which is a proper one—to select the active principles of plants for medical purposes, should not be handicapped by the introduction of a mixture of active principles of unknown composition.

No. 1046.—**Dilute Hydrocyanic Acid** (A).

The products obtained by the two alternate processes of the new U. S. Pharmacopœia are identical, so far as the strength in hydrocyanic acid is concerned, and this is all that is necessary. They differ, however, in the character of the menstruum. The product obtained by the first formula is intended to be kept in stock, and, as diluted hydrocyanic acid (prepared with distilled water alone), is very prone to decompose, sometimes without any apparent cause and in spite of all precautions, it was decided to select another menstruum, which has been shown, by J. U. Lloyd (see *Proceed. Amer. Pharm. Ass.*, xxiii., 1875, pp. 695 sqq.) to be a perfect preservative of the acid, and has, moreover, the advantage that it retains the active constituent, HCy, with greater persistence than an aqueous solution. The quantity of diluted hydrocyanic acid used in a prescription is so small that the amount of alcohol introduced thereby will not interfere with its action or produce a precipitate.

The second process it intended for the preparation of the diluted acid, *ex tempore*. As this is not intended to be kept, there was no need of using alcohol as a menstruum

No. 1047.—**Sulphurous Acid** (A).

The existing tables of the relation between specific gravity and percentage of aqueous sulphurous acid are much at variance. The pharmacopœia of 1870 directed the product to have a spec. grav. of 1.035, which, according to Scott, would correspond to 6.5% of H_2SO_3. But a series of experiments conducted by members of the Subcommittee on Chemistry of the Pharmacopœia Committee proved that an acid of the above specific gravity is not readily obtainable except by special precautions. They found the usual product of the process, at the average summer temperature, to have the spec. grav. 1.022–1.023 and to contain about 3.5% of sulphurous acid *gas* (SO_2) which corresponds to nearly 4.5 per cent of hydrated sulphurous acid. It will be easy for any of our readers to control the percentage of any commercial sample by means of the volumetric test given in the pharmacopœia.

No. 1048.—**Liquor Bismuth. et Hydrastia.**

DEAR SIR:—Your January number contains a reply from L. G. B., Iowa, Mich., relative to a query (Ch. K., 1099) in November number, upon liq. bismuth. et hydrastia. For the benefit of your inquirer and L. G. B., who dispensed liq. bismuth. ammon. cit. for that preparation with "satisfactory results," would say that liq. bismuth. et hydrastia is not a "catch."

The preparation in question was, I believe, originally prepared by Messrs. Chapman, Green & Co., manufacturing chemists, of Chicago, but formerly of Hudson, Mich., under the name of Liq. bismuth. et hydrastia, or solution of bismuth and hydrastia, containing the double citrate of bismuth and hydrastia. Each fluid drachm contains 2½ grs., 25 per cent of which consists of hydrastia citrate, forming a colorless solution.

Trusting this will throw a little more light on your inquirer, I am, respectfully, L. D. L.

YOUNGSTOWN, O.

Borax or Boric Acid in Diphtheria.

AT a recent meeting of the Clinical Society of London, a number of cases in which boric acid was used as a local application were mentioned, in which solutions of borax or boric acid in glycerin or in water were locally applied in the form of spray or with a brush. Saturated solutions were employed as often as every two hours with apparent benefit in some cases, in others dilute solutions of borated glycerin were employed. Its effects appeared to be chiefly local, and it served to aid in loosening, dissolving, and preventing the reformation of the diphtheritic membrane.

New Source of Mercurial Poisoning.

THE *Medical Times and Gazette* of Oct. 7th speaks of an instance in which the workmen engaged in exhausting the air from the little glass globes, used in the incandescent system of electric lighting, became poisoned by the vapor of mercury liberated from the mercurial air pumps used for this purpose.

BIBLIOGRAPHY.

A PRACTICAL LABORATORY COURSE IN MEDICAL CHEMISTRY. JOHN C. DRAPER, M.D., LL.D., Professor of Chemistry in the Medical Department University of New York and of Physiology and Natural History in the College of the City of New York. Oblong 8, New York, 1882. Wm. Wood & Co.

THIS is a very convenient pocket-chemistry specially designed for taking notes during lectures. The arrangement of subjects is specially adapted to a course of chemistry in medical colleges. After a brief introductory, describing the various manipulations employed in chemical work, and containing definitions of technical terms, the different principal poisons are taken up seriatim. The inorganic poisons and acids, including oxalic acid, are followed by the class of organic poisons, of which only two, however, are described, namely morphia and strychnia. The subject of water is next taken up, which is followed by the Chemistry of Animal Fluids and that of Sediments and Calculi. Finally there is an alphabetical list of Symbols and Formulæ; Directions for arranging the Laboratory and its Contents, and the Index.

The clear and concise style of the text, together with the practical arrangement and the handy form, will make the little volume a favorite with the student.

DIE CHINARINDEN. In pharmakognostischer Hinsicht dargestellt von F. A. Flückiger. Mit 8 lithographischen Tafeln. 8vo, Berlin, 1883. R. Gaertner's Verlagsbuchhandlung. Pp. 79.

CINCHONA bark has repeatedly been the subject of monographs, some of which are quite extended and elaborate. But nearly all of them were written with a special object, either botanically or chemically.

When Flückiger and Hanbury wrote the first edition of their Pharmacographia, they managed to abstract in their article on Cinchona all the essential facts relating to the botany, geography, history, chemistry, and commerce of the drug, and for this purpose had scoured all available sources of information. Later investigations enabled Professor Flückiger to still further improve the article, in the second edition of the work. In the course of his preparing the new edition of his "Pharmacognosie," which covers a broader ground than the Pharmacographia, he incorporated all the results of his former investigations into the text, and it would be difficult to name a drug which has been treated so exhaustively, and at the same time attractively, as cinchona has been treated at the hands of Prof. Flückiger.

The present volume is a special edition of the chapter on cinchona from the author's Pharmacognosie, with additions, and accompanied by eight lithographic illustrations, viz.: Cinchona succirubra (flowering branch), C. Calisaya var. Ledgerina (2 plates), C. lancifolia, C. officinalis, and Cascarilla heterocarpa, Remijia pedunculata, sections of C. calisaya and lancifolia, etc., and a section of cuprea bark.

The author first treats of the genus Cinchona in general, and its relations to allied genera; next he reviews the principal species which are of importance at the present time, and devotes a special chapter to the genus Remijia (formerly classed with Cinchona), which furnishes cuprea bark. Next follow chapters on the home of cinchona, its cultivation, the collection of the bark, mossing, coppicing, and uprooting, the external characters and anatomical structure of cinchona barks, the contents of their cells, and the seat of the alkaloids, the different kinds of bark found in market, so-called false barks, and a special chapter on cinchona cuprea. Then follow chapters on commercial statistics, the chemical constituents of the barks and quantity of alkaloids, assay of alkaloids, manufacture of the same, history of cinchona bark up to 1737, history up to the present time, and a list of works on cinchona.

We have thus given a summary of the contents of this work, and have given, on page 35 of this number, a translation of the chapter on cuprea bark, by permission of the author.

Treatises on materia medica are usually considered dry and uninteresting reading. Those who take up this book —or, for that matter, the author's "Pharmacognosie"— will be surprised how attractively the subject has been treated. It is a pleasure and a treat to read it.

The work is published in attractive style, on good paper with broad margin, and is sold for only 9 marks. We strongly recommend it to our readers as a valuable addition to their library. An English edition is in course of preparation.

HANDWÖRTERBUCH DER PHARMAKOGNOSIE DES PFLANZENREICHS. Von PROF. DR. G. C. WITTSTEIN. 8vo. Breslau, 1882. (Eduard Trewendt.) Lief. 3 und 4. [Alphabetical Handbook of the Pharmacognosy of the Vegetable Kingdom.]

PARTS 3 and 4, which have been received from the publisher, bring the work down to the article "Nelkenbaum" (p. 576). Our previous judgment, that the work forms an important addition to our literature is amply borne out by the numbers before us. Of course, it is in the nature of the subject itself that a portion of it at least must be a compilation from other sources; but the pharmacognostic portion is evidently based upon careful and independent observation of the author.

Excellent as the work is in other respects, we must again put on record our regret that the author should continue his efforts at finding ethymologies for words which can only be unravelled by one who is thoroughly versed in comparative philology, or which are simply hopeless. Such derivations as: *Acorus* (p. 369) from "ἀ + χορη" [probably meant for κόρη], which he interprets as meaning "against eyeball," "because it is used in eye diseases"—or *Amomum* (p. 347) from ἀ + μωμος "without blemish" —or "*Carragaheen*" (p. 385) from a supposed Irish word "corigeen," which itself is said to be composed of "κορύζα and γιγνομαι = slime-producing"—or καινα-βος (p. 302) [which is simply a misspelled form for κάννα βις] from "χαιειν [? probably meant for χέειν or χεῖειν] to pour, and ἀναβαινειν to grow up" [!], "because the plant grows luxuriantly about springs," etc., etc., are flights of philological fancy which are entertaining by their ingeniousness and naiveté, but which are worse than useless in a work of reference.

LEGAL MEDICINE. By CHARLES MEYMOTT TIDY, M.B., F.C.S., etc. New York: William Wood & Co., 1882. In 2 vol. 8vo, pp. 314, 298.

THESE concluding volumes of this series of "Wood's Library of Standard Medical Authors" treat of the following subjects: I.—Evidence, The Signs of Death, Identity, The Causes of Death, The Post-Mortem. Sex. Monstrosities. Hermaphrodism. II.—The Expectation of Life. Presumption of Death and Survivorship. Heat and Cold. Burns and Scalds. Lightning, Explosives, and Combustibles. Starvation; its Treatment.

In all the departments referred to, the author appears to have embraced a large amount of recent information. The citations of authority and illustrative cases, instead of being incorporated in the text, form appendices to the various chapters, thus the labor of reading is lessened, and a better general idea of the subject is gained. The author has certainly devoted much labor upon the work, and has furnished us with an excellent guide.

PHARMACEUTISCHE RUNDSCHAU UND ZEITUNG für die wissenschaftlichen und gewerblichen Interessen der Pharmacie und verwandten Berufs- und Geschäftszweige in den Vereinigten Staaten. — Herausgegeben von DR. FR. HOFFMANN. 4to. New York (64 Ann Street). Annual Subscription $2.00 (U. S. and Canada); $2.50 (Postal Union).

THIS new periodical, intended for the German-reading members of the profession here or abroad, presents itself in an attractive style and has all the elements and characteristics which are calculated to bespeak for it the favor of the public and to promise a successful career. The name of

the editor, who is well known on both sides of the Atlantic, is a sufficient guarantee for the scientific standing of the paper. We wish it all possible success.

OLD SCHOOL MEDICINE AND HOMŒOPATHY. A Reprint from the *North American Review*, June, 1882. Being a Reply to Prof. Palmer's Article in the March Nnmber, Entitled "The Fallacies of Homœopathy." By J. W. DOWLING, M.D., etc. New York: C. T. Hurlburt. 1882, pp.

THIS rejoinder has certainly the advantage over the original article, in the temperate character of its language and the demonstrable nature of the facts it alleges.

GUIDE TO THERAPEUTICS AND MATERIA MEDICA. By ROBERT FARQUHARSEN, M.D. Edin., etc. Third American edition, revised by the Author. Enlarged and adapted to the United States Pharmacopœia by FRANK WOODBURY, M.D., etc. Philadelphia: Henry C. Lea's Sons & Co., 1882.

FROM its first appearance this has been one of the most convenient and comprehensive manuals within the reach of the medical student. The clear and large type; the conciseness of its statements; the large number of articles and preparations referred to are noteworthy; the convenient arrangement followed of arranging the subject clearly under Officinal Preparations, Poisoning, Antidotes, Local Action, Constitutional Actions and Uses, Mode of Elimination, Preparations, etc., is excellent. Furthermore, the arrangement of the physiological and therapeutical effects of each article in parallel columns facilitates ready reference, and aids the student in distinguishing between essentially different effects of a medicine.

It is to be regretted that the publication of the work coincided so nearly with that of the Pharmacopœia of 1880, since the present edition is thereby rendered of much less value to the student. As it contains but very few of the two hundred and fifty-six articles newly added to the Pharmacopœia, and mentions as officinal all of the two hundred and twenty-nine articles now abolished, it cannot be said to be a thoroughly reliable guide.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK for the year 1882. Published by the Society. Pp. 474, with appendix.

THIS series of reports always contains a large number of valuable papers. In the present instance we notice one by Dr. E. C. Seguin on the Efficient Dosage of Certain Remedies, which goes out of the beaten track in a way that is characteristic of one who learns for himself. The comparison of the doses which he has found it necessary to prescribe in certain instances, with those given by leading text-books, shows how inexpedient it might be to adopt any standard which could be sustained in a court of law.

In this paper the remedies referred to are fluid extract of conium, Fowler's solution, crystallized aconitia of Duquesnel, phosphorus, phosphide of zinc, and crystallized nitrate of silver.

This meeting will be memorable as that at which the Society, by a vote of 52 ayes to 18 nays, adopted the "New Code" of Ethics.

The volume appears in the handsome shape it has assumed since the Society ceased to depend upon the State for its publication, and contains much matter of interest relating to the legal aspects of medical practice in New York.

THE CHEMISTS' AND DRUGGISTS' DIARY, 1883. (Issued by the *Chemist and Druggist*, Cannon street, London. 4to.

THE new diary for 1883 lies before us, and is, as usual, filled with highly interesting matter. One of the features of this issue is a brief treatise on Veterinary Medicine, based upon a series of articles by W. Hunting, M.R.C.-V.S., published some twelve years ago in the *Chemist and Druggist*, augmented and revised by an eminent veterinary surgeon. The large list of advertisements forms a valuable means of reference for intending buyers of any article connected with the drug business. On page 170 is found a botanical calendar, and on page 171 the "Addresses of some London Doctors," among which we notice all the prominent names.

PROCEEDINGS OF THE FIFTH ANNUAL MEETING OF THE KENTUCKY PHARMACEUTICAL ASSOCIATION. Held in Covington, Ky., May 17th and 18th, 1882.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

268,245. *Process for Preparing Substitutes for Mother's Milk.*—Otto Lohrmann, Altona, Germany. The process of producing from the milk of cows or other domestic animal milk having the properties of human milk—that is to say, by treating the cow's or other milk, by the addition thereto of water, sugar, cream, carbonate of potash, phosphoric acid, and a digestive ferment.

268,316. *Vaginal Electrode.*—Albert W. Tipton, Jacksonville, Ind.

268,425. *Soda Water Draft-Tube.*—Joseph C. Miller, Chelsea, Mass.

268,525. *Medical Inhaler.*—Ernest Nitz, Philadelphia, Pa., assignor of one-half to Henry Thomsen, same place.

268,543. *Production of Methylquinoline.*—Christian Rudolph, Höchst-am-Main, Germany, assignor to Farbwerke, vormals Meister, Lucius & Brüning, same place. The process for producing methylquinoline from orthonitrobenzylidenacetone, which consists in treating the same with reducing agents and obtaining it in a pure state by distillation in a current of steam.

268,665. *Combined Measure and Funnel.*—Derick B. Hartwell, Kirkwood, Ill. *Claim.* A combined measure and funnel united to each other, and provided with a valve between the parts, which valve is opened and closed by the partial rotation upon a pivot of the receptacle or base.

268,701. *Process of and Apparatus for Evaporating Liquids.*—Jean A. Mathieu, Port Leyden, N. Y.

268,793. *Manufacture of Sulphuric Acid.*—Erasmus Haworth, Galena, Kansas. The method of manufacturing sulphuric acid, consisting in conducting sulphurous acid gas, prepared from any suitable source or as a waste or by-product of burning pyrites from lead works, through water, wherein it is dissolved, and any metallic fumes are condensed, then conducting the solution intermittently or by constant flow to a heating tank and back to the chamber in which the solution is formed, and leading the pure sulphurous acid gas evolved in the heating tank to a conventional leaden chamber.

268,805. *Medicine Injector.*—John A. Knight, Auburn, Me. The combination of the air-bulb *b*, neck *c*, medicine chamber *b'*, plug *p*, valve *d*, located on the neck *c*, tube *x*, and nozzle *f*, the said neck *c* and tube *x* entering the medicine-chamber *b'*.

268,872. *Bottle-Stopper.*—John B. Davids, New York, N. Y. The device for insertion in bottle-stoppers, consisting of the spiral B, having eye B', the loose ring D, and the sheet-metal plate C.

268,886. *Hand Lozenge-Cutter.*—Charles H. Hull, Chicago, Ill., assignor of one-half to Rufus P. Pattison, same place. A hand lozenge-cutter consisting essentially of the plates A and C, having suitable operating handles, of the series of cutters *a*, the embossing and expelling pistons B, provided with the stems a^1, the adjusting-nuts a^2 and a^3, the springs *b*, the connecting-bolts b^1 and b^2, and the springs d^2 and d^3.

268,933. *Apparatus for Vapor-Bath.*—Erastus Pond, Portsmouth, Ohio.

268,949. *Diffusion Apparatus.*—Rudolf Sieg, New Orleans, La., assignor to Emerson Foote, New York, N. Y.

268,962. *Medicinal Compound.*—George Ulrich, Erie, Pa. Composed of sarsaparilla-root, juniper-berries, sassafras-bark, guaiacum-wood, fennel-seed, anise-seed, bearberry-leaves, betony-leaves, carrot-seed, gravel-root, quebracho-bark, matico-leaves, fine-leaved water-hemlock seed, pleurisy-root, hollow-leaved berberry-root, leaf-cup root, senna leaves, alum, calomel, and cinnabar.

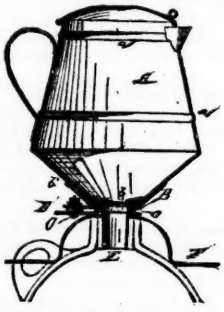
268,961. *Capsule Cutting Machine.*—Harrison H. Taylor, Detroit, Mich., assignor to Frederick A. Hubel, same place.

268,996. *Hypodermic Needle.*—Alexander W. Brinkerhoff, Upper Sandusky, Ohio.

269,145. *Medical Compound.*—John S. W. Whealton, Crisfield, Md. The compound for use in consumption and chronic dyspepsia consisting of rum, light wood shavings, and common salt.

269,221. *Packing-Box for Bottles.*—Edward L. Mueller, St. Louis, Mo. Compartments formed of pasteboard folded in the manner shown in the illustration.

268,665.



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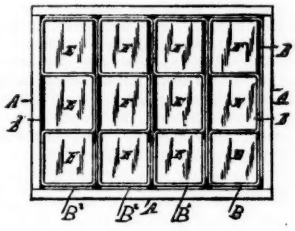

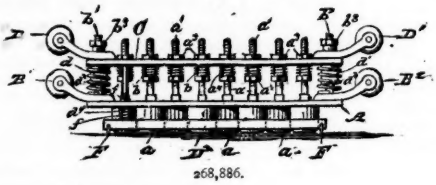

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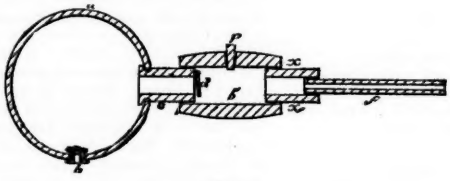

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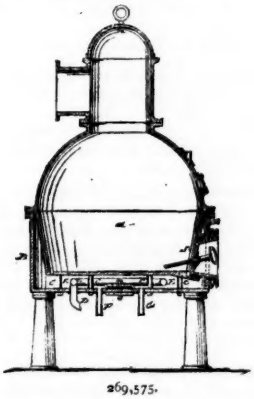

269,575.

269,575. *Vacuum-Pan.*—Uno H. Hillman, New York, N.Y.

Brief.—The object of the invention is to furnish an improved form of vacuum-pan specially adapted to reducing fluids to a thickened or stiff mass, or even to dryness, as is necessary with some substances which undergo rapid chemical change, and of such a form as will facilitate the removal of the thickened or dry mass from the pan and will present the greatest advantages in cleansing and manipulation.

Claim.—1. A vacuum-pan composed of two sections, the upper one dome-shaped, the lower one slightly conical and flat-bottomed and enveloped by a water-retaining jacket connected by pipes with suitable means for heating, and provided with a low-down door for conveniently discharging its contents, substantially as described.

2. The combination of the vacuum-pan A, composed of two sections, the jacket B, enveloping the lower section, the hot and cold water pipes E and G, and the low-down door, substantially as described.

ITEMS.

College of Pharmacy of the City of New York.—From the records of the College, for the current lecture session, we take the following statistics:

The summer course in practical botany, from April to August, 1882, was attended by 33 students. For the summer it is expected that the attendance will be largely increased, since this is the only available course on botany accessible in New York City and vicinity, and the method of instruction followed by Professor Joseph Schrenk is both practical and thorough.

The summer course in practical pharmacy was attended by 24 students.

The laboratory has had a larger attendance than usual, owing to the introduction of the compulsory laboratory course demanded from each graduate. Up to the present, 119 students have availed themselves of the opportunity offered. The days of attendance for the several students are arranged, after consultation between the instructor and the student, so as to fall as lightly as possible upon the engagements of the latter.

The regular course is attended by 187 Junior and by 117 Senior students, total: 304.

The quiz classes by 91 Juniors and 48 Seniors.

The War Against Patent Medicines in Holland.—In Holland, the pharmacists continue to combat courageously the invasion of secret remedies and specialties. In this regard, they exhibit a disinterestedness which we could wish to see imitated by our Belgian pharmacists. At Amsterdam, seventy of the pharmacists, at Rotterdam,

all except three, and those of Maestricht, Arnheim, Nimègue, and Goes have published articles in the local political journals, declaring the assertions of those secret-medicine dealers who announce that their products are to be had in all good pharmacies to be false. They are especially warm against the famous Hop Bitters, the new panacea which, for the moment, pales the star of the great Holloway himself.—*Journal de Pharmacie d'Anvers.*

Enforcement of the "Medical Act" in New York State.—The Board of Censors of the Medical Scoiety of the County of New York, in their recent annual report to the Society, stated that out of twenty-seven prosecutions for illegal practice of medicine instituted and continued during the preceding year, only two had proved unsuccessful. These cases, in the language of the counsel of the Board, were as follows:

3. "THE PEOPLE, ETC., *vs.* LOUIS SEITHER. At the date of my last report, this man, an east-side druggist, had been held by Justice Morgan in $500 bail. He was subsequently indicted. He put a prescription in a bottle marked 'Dr. Seither' for a woman seriously ill, whom he never saw, and got paid for it. The case was clear, the proof unquestionable. The law was not only technically, but *substantially*, violated. The jury acquitted the prisoner."

4. "THE PEOPLE, ETC., *vs.* WILLIAM EHLERS. Another east-side druggist, who was held in $500 bail by Justice Morgan. He was indicted by the Grand Jury, and ably tried by Assistant District Attorney Beecher. He, or some one in his store, sold a young woman medicine to produce miscarriage; but the woman had evidently been tampered with before the trial, and refused to identify defendant, although she had positively done so before. Defendant was acquitted."

The New York Medical Journal, on the commencement of its thirty-eighth volume, changes from a monthly to a weekly issue of twenty-eight pages. It has long been one of the best medical periodicals of this country, and in its present shape will doubtless receive an increase of patronage which its unusual excellence merits.

The Medical Record also appears in a new form and new dress, its pages having been widened and lengthened, and its typography improved, so as to increase its capacity one-seventh. Its publishers announce perfected arrangements for improving its character, already well established, as a medical newspaper.

Fraudulent Hops.—It is reported that, owing to the high price of hops, some enterprising parties in England are buying up the spent hops used by the ale-brewers, and, after drying and manipulating them, export them to the continent of Europe. A writer in the *Pharmaceutische Zeitung* remarks that this is probably meant as a "return-dedication" for the artificially colored rose-leaves which some German dealers put on the London market two years ago.

Spurious Drugs in England.—MR. WILLIAMS lately reported to the Pharmaceutical Council that a ton and a half of worthless and rotten ipecacuanha had been sold at auction in London at a good price, and showed a sample of jalap which, after all the jalapin had been extracted in Paris, had been dried and sold in England as jalap. The sale of Tolu balsam containing forty per cent of resin was also mentioned. Rose leaves colored with magenta were still on the market and were purchased in London.

Regulations about the Supply of Wine in German Military Hospitals.—The German War Department has given instructions to the surgeons-in-chief and directors of military hospitals to cause the supplies of wine to be purchased, hereafter, on the basis of the liter-measure, and to dispense and account for it by the same system. For lighter wines, a price of 3 *marks* per liter (about 75 cents per quart), and 5 *marks* per liter (about $1.25 per quart) for heavier wines, has been set as the highest limit in making purchases.

Impalpable Powder of Boric Acid.—Some time ago, Mr. Richard Fingerhut, of 404 Fourth avenue, in this city, favored us with some original remarks on the subject of powdering boric acid—a matter of some difficulty. Of late the demand for this form of the acid, for applying by means a powder-blower to ulcerated surfaces, has been considerable, due in part to the published results of its use in this manner by Dr. Sexton, a well-known aural surgeon of New York. To supply such demand Mr. Fingerhut has procured a supply of the impalpable powder made by Gehe & Co., which is as beautiful (from a pharmaceutical point of view) as any specimen we have ever seen.

M. Dumas, the French chemist, was lately presented by the French Academy of Sciences with a medal which had been struck specially to commemorate the fiftieth anniversary of his election as one of its members.

Paul Cazeneuve has been appointed to the new chair of organic and toxicological chemistry in the Lyons Faculty of Medicine and Pharmacy.

Madagascar Aloes, according to Holmes, is a pitch-like mass breaking with a shining fracture, and yielding a light-brown powder with a faintly green tint. It is soluble in sulphuric acid, first with a yellow, afterwards with a carmine color; but, in other respects, and in odor or taste, it agrees with cape aloes.

"No One is a Hero to his Varlet."—*Sir Arthur Pillson, Bart., M.D., F.R.C.P., etc., etc.* "And are you better, Simpson, after that medicine I gave you last night?"—*Cook.* "Well, I can't say as I ham, Sir Harthur; and to tell you the truth, if you've no objection, Sir Harthur, I should like to consult a *regular medical man.*"—*Punch.*

Once upon a time, say the story-tellers, "Ouida" asked Charles Reade to suggest a name for her new pet dog. "'Tonic,'" quoth he, instanter; "for it is sure to be a mixture of *bark, steal* and *whine.*"

PHARM. CALENDAR FOR FEBRUARY.

N. B.—The officers of Societies, Colleges of Pharmacy, Pharm. Associations, etc., will oblige us by forwarding schedules of their meetings, lists of officers, and any changes that may be desirable.

Date.	Society Meetings.
Thurs. 1st.	New York Coll. Pharm.—Trustees' Meet.
	Louisville Coll. Pharm.—Pharm. Meet.
	Massachusetts College of Pharmacy.—Trustees' Meeting.
	Philadelphia Coll. Pharm.—Alumni Soc. M.
Friday 2d.	American Chem. Soc.—Meets at New York.
Mon. 5th.	Erie Co. Pharm. Asso.—Meet. at Buffalo.
Tues. 6th.	Philadelphia Coll. Pharm.—Trustees' M.
	Maryland Coll. Pharm.—Trustees' Meeting.
	Connecticut Pharm. Asso.—Annual Meet.
	St. Joseph (Missouri) Pharm. Assoc.—Meet.
Thurs. 8th.	Newark Pharm. Asso.—Meeting.
	Louisville Coll. Pharm.—Direct. Meet.
	Philadelphia Coll. Pharm—Alumni Ph. M.
	Maryland Coll. Pharm.—Meet.
	New York German Apoth. Soc.—Meet.
	Lancaster Co. (Pa.) Pharm. Assoc.—Meet.
Tues. 13th.	Pittsburgh Coll. Pharm.—Trust Meet.
	Chicago Coll. Pharm.—Trust. Meet.
	St. Louis College Pharm.—Pharm. Meet.
	Massachusetts Coll. Pharmacy.—Pharm. M.
	National Coll. Pharm.—Meet.
	Iowa State Pharm. Asso.—Annual Meet.
Wed. 14th.	New York Board of Pharmacy.—Meeting.
Thurs. 15th.	New York Coll. Pharm.—Pharm. Meet.
Tues. 20th.	St. Louis Coll. Pharm.—Trust. & Alum. M.
	Philadelphia Coll. Pharm.—Pharm. M.
	St. Joseph (Missouri) Pharm. Assoc.—Meet.
Thurs. 22d.	Kings Co. Board of Pharm.—Meet.
Tues. 27th.	Boston Druggists' Assoc.—Meet.